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ORIGINAL ARTICLES.

MODERN GASTROSTOMY, WITH REPORT OF A CASE.

BY THOMAS S. K. MORTON, M.D.,

PROFESSOR OF SURGERY IN THE PHILADELPHIA POLYCLINIC; CONSULTING SURGEON, PHILADELPHIA DISPENSARY; OUT-PATIENT SURGEON, PENNSYLVANIA HOSPITAL; ASSISTANT SURGEON, ORTHOPÆDIC HOSPITAL.

At this time the methods of forming a gastric fistule by simply incising the abdominal wall over the stomach and suturing the viscus to the wound-margins must be considered obsolete. The surgeon is not justified in subjecting a patient to the horrors of subsequent leakage of the stomach-contents which such methods almost of necessity involve, so that the state of the sufferer after operation may be worse—owing to excoriation and uncleanness—than that preceding its performance. Certainly such procedures should be relegated to the list of last resorts, only to be suggested when actual starvation is in progress, the œsophagus is impermeable to fluids, and other operations are impossible.

On the other hand, we have now available two, if not three, methods of performing gastrostomy, in which most of the disadvantages of the older operations are obviated, which can be strongly urged at very early stages of œsophageal stenosis, and can be expected to add enormously to the patient's comfort and welfare.

These are the operations proposed respectively by von Hacker,¹ of Vienna (1886); Witzel² (1891); and Ssabanejew,³ of Odessa (1890). The latter method was apparently devised and practised quite independently by R. Frank,⁴ of Vienna, in 1892, and should in justice be denoted, as in the present communication, by the compound name of both of these surgeons. To these methods may perhaps in the future be added the procedure advocated by Hahn⁵ (1887). We may dispose of this at once in a few words. It consists of making a straight incision (Fenger's) one or two fingers' breadth beneath and parallel with the left costal border external to the rectus muscle. A small opening is made in the peritoneum through which a finger is thrust up to the eighth intercostal space and cut

down upon by a second incision from above. A forceps is thrust through this second cut and the stomach grasped and drawn out far enough to be fastened to the skin-margins between the cartilages. Necrosis of the ninth rib has been noted three times subsequent to this operation, so that, because of this and other feared complications and the introduction of more promising methods, it has not found favor, although its author has been pleased with the results and claims that a sphincteric action of the ribs prevents regurgitation.

The von Hacker method, in brief, requires a vertical incision over the left rectus muscle, blunt dissection of that muscle and of the transversalis in the direction of their fibres, small incision of peritoneum, the stomach grasped as near the fundus as possible and drawn a short distance through the wound by slings of silk or silkworm-gut, fixation of stomach to peritoneum on all sides, sutures at upper and lower angles of the wound embracing the whole abdominal wall and outer coats of stomach, and, finally, tamponade of the middle, unsutured portion of the parietal incision. Two or three days later the stomach is incised in the direction of its vessels and a large tube inserted for feeding. The average result of this operation is very fair, but there is great uncertainty that regurgitation will be prevented, although a sphincter-like action of the separated muscle usually prevents leakage around the tube. It has the advantage of ease and rapidity of execution. Its field is limited largely to desperate cases in which these elements are essential, to certain conditions where ready access for subsequent instrumentation of the œsophagus from below is desirable, and where complications may prohibit or render undesirable the two other operations which are to be described.

Albert and Kocher¹ have modified the von Hacker operation by drawing a cone of stomach through the rectus, suturing its base to the parietal peritoneum, and then carrying its apex beneath a bridge of skin to just below the costal margin, where it is brought out, incised, and the fistule-edges united with the lips of the small wound which transmits it. The functional results are said to be excellent.

The von Hacker operation is distinctly contraindicated in malignant strictures, where the patient's condition justifies either of the following methods: Witzel's procedure is unquestionably the most

¹ Wien. med. Wochenschr., 1886, Nr. 31 u. 32.

² Centralbl. für Chirurg., 1891, Nr. 32, p. 601.

³ Wien. klin. Wochenschr., 1893, Nr. 13.

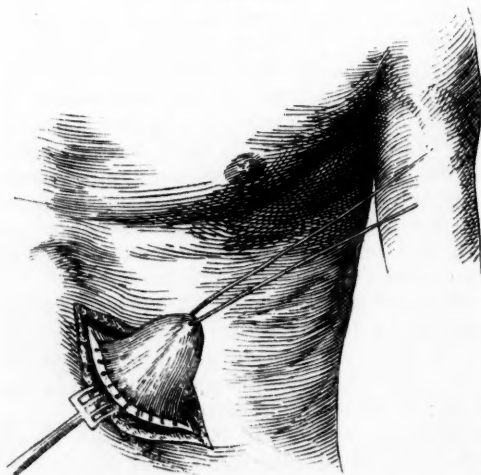
⁴ Loc. cit.

⁵ Centralbl. für Chirurgie, 1890, Nr. 11, p. 193.

¹ Kocher's Operative Surgery, London, 1895, p. 127.

popular of the modern gastrostomy operations. It has the advantages of absolutely preventing external leakage and of closing spontaneously when the tube is left out. On the contrary, it is the most difficult of performance, is more dangerous because of the necessity of opening the stomach before the peritoneum can be sutured, requires the patient to wear a tube and remain near to the physician so that readjustments or reintroductions can promptly be made, and prohibits at any time retrograde or combined instrumentation of the oesophagus. In abstract it is thus performed: Oblique incision parallel to the left costal border, longitudinal incision of the sheath of the left rectus muscle; blunt separation of the fibres of the rectus and transversalis muscles parallel to their course, oblique incision of peritoneum. The stomach is drawn well out upon the abdomen and incised near the fundus just sufficiently to admit the passage of a quarter-inch-diameter rubber tube. The tube is then in-folded by Lembert sutures, including the muscular and serous walls for a distance of one and a half inches upward in the oblique direction of the external wound and for at least half an inch below the entrance of the tube into the viscus. Next the stomach is dropped back and sutured to the parietal peritoneum all around the abdominal incision, thus closing off the operative field from the peritoneal cavity; and, finally, the abdominal incision, down to, but not including peritoneum, is closed, leaving only a snug-fitting opening in the upper portion

FIG. 1.

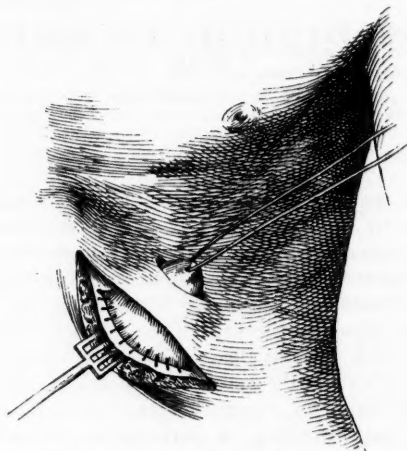


Cone of stomach drawn through incision and its base sutured to peritoneum. (MEYER.)

for the exit of the tube. Feeding, of course, may be done immediately. The long, oblique, valve-like opening effectually prevents leakage of stomach-contents, even in the absence of the tube. Great

difficulty may be experienced in reintroduction of the tube should it, for any reason, be left out for a longer period than a few hours or even minutes. The fistule has remained perfect for many months in some cases, and in at least one instance has closed spontaneously when the tube was no longer worn.

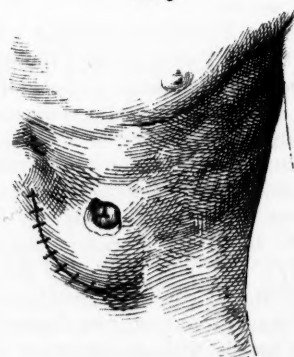
FIG. 2.



Cone of stomach drawn under bridge of skin and through upper wound. (MEYER.)

In the Ssabanejew-Frank operation a three-inch, or longer, straight incision is made one finger's breadth beneath the left costal border. The underlying muscles are bluntly separated in the direction of their fibres, and the peritoneum opened in the same direction and to the full ex-

FIG. 3.



Abdominal wound closed off. Stomach opened and margins of fistula sutured to edges of upper wound. (MEYER.)

tent of the external wound. The stomach is drawn out and a long silk or silkworm-gut sling is passed through the outer coats at a point near the cardiac extremity. A cone of stomach is then drawn out to an extent of from one and a half to two inches through the wound. Steady traction

for a short time upon the sling or slings may be required to accomplish this. Then the peritoneal edges of the wound are neatly united to the serous coat of the stomach in all directions, thus at once shutting off the abdominal cavity. The muscles may likewise be sutured to the stomach if time permits. A second incision, one-half inch long, is

FIG. 4.

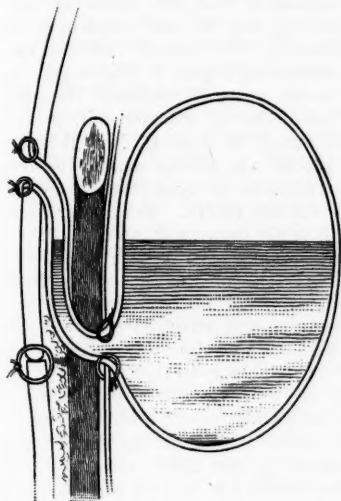


Diagram representing valve formed in Ssabanejew-Frank operation. (MEYER.)

now made about an inch above the costal border, parallel to and about the centre of the first. This is carried through skin only. The bridge of skin separating the two wounds is next separated from the cartilages by blunt dissection and the sling-thread passed beneath. Traction upon this brings the apex of the cone of stomach out of the upper wound; the original abdominal incision is then closed. Finally, the projecting portion of stomach is incised to the extent of half an inch and its mucous membrane sutured to the skin-margins of the smaller wound. Feeding may be immediate. The valve formed by the indirect opening into the stomach, and compression of the fistulous canal between the bridge of skin and the costal cartilages, has, in all cases reported, proved to be almost, if not quite, as perfect as that of Witzel. In addition, no tube need be worn, the patient can feed and care for himself, and, probably, retrograde or combined instrumentation of the oesophagus can readily be executed through it. I say probably, because it has but twice (Winslow's cases), to my knowledge, been attempted or accomplished, although I could easily pass my finger into the stomach of the case to be described without apparent disadvantage.

Ssabanejew and Frank have each performed this

operation four times and secured a perfect-working fistula in every case. Meyer, of New York, to whom is due almost the entire credit of having introduced and popularized the modern gastrostomy operations in America, and to whose writings I am indebted for many of the facts, as well as the illustrations here presented, has reported three additional cases in an admirable article,¹ in which he reviews the history and minutiae of all the proposed methods. One of his cases died on the following day; there was no leakage. The second lived seven weeks with a perfect, non-leaking fistula. A third, owing to complications incident to a preceding von Hacker operation, was not satisfactory.

Randolph Winslow² has reported two successful operations by this method, and was much pleased with the workings of the resultant fistules. Both were undertaken for cicatricial stenosis. One was a colored boy three years old. The artificial opening worked admirably for a year, when the little fellow died from the effects of an oesophagotomy. It was found to be perfectly feasible to practise retrograde instrumentation of the oesophagus through the dilated fistula in this case. Winslow's second case was also in a colored child, aged one year and nine months. Some suppuration followed as a result of food getting into the wound when he was fed through the fistula at the time of operation. The contents of the stomach were not so well retained in this case as in the first, yet the artificial opening acted very satisfactorily. Four months later a small bougie was passed into the stomach, and later a string was passed from the mouth through the fistula and used as a saw with which to divide the stricture. A perfect restoration of the calibre of the oesophagus resulted from subsequent dilatation with bougies, and, as the fistula was no longer required, its edges were freshened and sutured. Satisfactory closure at once resulted.

Dr. Max J. Stern, of Philadelphia,³ operated by this method in the spring of 1894 with excellent functional result for a few days, when bronchitis produced a fatal result.

My own case, October, 1894, next follows in order of precedence; and, finally, Finney,⁴ in December, 1894, performed this operation in a case of carcinoma of the oesophagus in a man aged fifty years. The stomach was not opened until "a day or two later." Ten days later, when the report was made, the fistula was working most sat-

¹ Recent Methods of Gastrostomy for Stricture of the Oesophagus, by Willy Meyer, M.D. Am. Jour. Med. Sci., October, 1894, p. 400.

² Annals of Surgery, May, 1895, p. 543.

³ Personal communication.

⁴ Bull. Johns Hopkins Hospital, February, 1895, p. 32.

isfactorily and not the slightest leakage had taken place.

In a subsequent communication¹ Finney states that his patient lived six and a half months and died of inanition. The action of the fistule was perfect, and leakage never occurred.

H. R., a Russian, aged fifty-one years, came to me at the Polyclinic Hospital at the suggestion of Dr. Frank W. Talley on October 4, 1894. His medical history was that of excellent health until five months previously. He had never swallowed any corrosives or sustained any injury of the throat or oesophagus. The first sign of difficulty was a little obstruction to the passage of large masses down the gullet while eating. Following this, smaller and smaller boluses were impeded or actually regurgitated. Coffee-ground material was next passed in the stools from time to time. Blood was never regurgitated or vomited. He had little or no pain; only complaining of weakness and difficulty in deglutition. Nothing but liquids could be swallowed. He had lost much flesh and was quite anæmic. Examination negative excepting oesophagus, where an obstruction was located 12 inches from the teeth and diagnosed to be probably carcinomatous. It was ascertained that the largest bougie that could be passed without force measured $\frac{3}{8}$ inch. The constriction appeared to be about an inch in vertical extent. No bleeding followed the instrumentation.

Operation was at once proposed, as it is my belief that in all cases it is best to make a fistule so soon as emaciation begins to make itself manifest, or, as Meyer puts it, as soon as the scales show progressive loss of weight, and while the patient still has sufficient strength to bear the operation well and to ward off the bronchitis or pneumonia which kills so many gastrostomy-subjects when the operation is undertaken as a last resort.

He was liberally fed upon fluids that would pass the stricture, and while in the hospital gained considerable weight and color; but, as operation was refused, he was discharged two weeks after admission. During this time, with the kind assistance of Dr. S. Solis-Cohen, an attempt was made to pass the gastro-diaphane, but without success, owing to the tightness of the stricture. No blood was vomited or passed while he was under observation.

On October 25th he re-entered the hospital willing to submit to anything necessary to afford relief from torturing hunger, for meanwhile obstruction had become almost complete and only small quantities of fluids could be swallowed, and this with the greatest difficulty.

On October 29th, with the valued assistance of Dr. Max J. Stern, operation after the method of Ssabanejew-Frank was performed. An incision, $3\frac{1}{2}$ inches long, paralleled to and $\frac{3}{4}$ inch below the left costal arch, was made to the outer side of the left rectus muscle. The peritoneum was exposed and opened to the same extent. Edge of liver pre-

sented, but was pushed upward to the right, where it gave no further trouble. The stomach then came into view. It was identified by its general appearance, the direction and size of its vessels springing from the greater curvature, the origin of the omentum, and, finally, by passing a silkworm-gut suture through the serous and muscular coats, and, while traction was thereby made upon the organ, passing a finger along the upper surface until the entrance of the oesophagus into the viscus as well as the oesophageal opening of the diaphragm was accurately made out. The tumor could not be reached by the examining-finger. The organ was then strongly drawn upon by means of the suture in its wall. Thus a cone of stomach-wall 3 inches high was pulled out of the wound. Now it was seen that a suture placed $1\frac{1}{2}$ inches nearer the oesophagus would approximate the base of the cone that much nearer the cardiac orifice. So another strong stitch was passed at the point indicated and the first one withdrawn. While this 3-inch cone of stomach was held out (the suture occupying the apex), a continuous suture of silk was run in three sections around its base as it emerged from the peritoneal wound. This suture united the serous and muscular layers of the stomach to the parietal peritoneum. At one or two points where approximation did not appear to be perfect an extra interrupted stitch was afterward taken. Next, an incision parallel to the first was made $\frac{3}{4}$ inch above the costal border and $1\frac{1}{2}$ inches above the first or abdominal incision. This cut was $\frac{3}{4}$ inch long and was carried down through the skin only. By blunt dissection the second incision was made to communicate with the first by undermining the bridge of integument between. Now the stomach tension-suture was grasped by a forceps thrust through beneath the bridge of skin, and brought out through the upper incision. Traction upon it easily caused about one inch of the cone of stomach to protrude from the upper wound. While this was held in position the original abdominal wound was closed by interrupted silkworm-gut stitches carried down to, but not through, the peritoneum. This done, acetanilid was rubbed into the line of sutures and that opening effectually sealed off by a dressing of collodion and gauze. Then the projecting cone of stomach was opened to the extent of $\frac{5}{8}$ inch through all of its coats in a direction corresponding to that of the cutaneous wound. The serous edges of the gastric incision were then turned over and sutured to the margins of the skin-wound. Bleeding was active from the incised stomach-wall, but soon ceased spontaneously. No outflow of gastric contents took place during or after the operation, although the patient was violently ill from the ether-anæsthesia, and the stomach-contractions were of visibly great violence owing to the oesophageal obstruction preventing vomiting. It was thought best not to feed the patient through the fistule until nausea had passed off. Washing out the viscus would have been exceedingly easy to perform, but was considered unnecessary. After acetanilid had been rubbed into the junctions of the skin and mucous membrane, a bit of protective was placed

¹ Bull. Johns Hopkins Hospital, September-October, 1895, p. 145.

over the exposed surfaces and a sterile gauze dressing applied over all and held in place by a many-tailed binder.

Rectal enemas were employed for twenty-four hours, when feeding by the fistula was commenced. Some bronchial irritation and severe cough followed the operation, but did not prove serious; no leakage took place, and no suture tore out. Primary union of the abdominal wound was secured and convalescence was uneventful. Pains were taken that the man should sit up in bed almost at once after the operation and to get out of bed within a week, so as to ward off the strong inclination to pneumonia to which these cases are so subject.

In two weeks the patient returned to his home and subsequently cared for himself perfectly with the aid of his wife. Neither of them was possessed of much intelligence, yet no trouble with the fistula occurred during the five months that he lived subsequent to the operation. The apparatus for feeding consisted of a rubber tube $\frac{3}{8}$ inch in outside diameter and $\frac{1}{4}$ inch calibre, attached to a half-pint funnel. Through this he could feed himself with fluids with the greatest ease and expedition. Sometimes he would chew up solid food, dissolve it in fluid, and then inject the mixture as usual by gravity. By this expedient he got the digestive effects of saliva and some of the pleasure of eating. Hunger, however, was usually well satisfied by feeding through the tube. A few days after the operation, owing probably to lack of irritation incident to attempts at swallowing food, the stricture dilated and permitted of rather free deglutition; but this ease in swallowing proved of short duration, for in a week the œsophagus finally closed to the passage even of fluids. He gained constantly in weight and strength during the five months that he lived, and even had returned to his occupation as tailor, when he was taken unexpectedly with a hemorrhage (upward) from the œsophagus which almost at once killed him. Owing to the religious principles of his family no post-mortem examination could be secured.

On December 14, 1894, he was presented to the Surgical Section of the College of Physicians and the perfect working of the fistula demonstrated, as well as the ready method of feeding. During the period which elapsed between his leaving the hospital and his death I took many opportunities to see him and always found the gastric opening tight, with no surrounding excoriation.

HYPO-LEUCOCYTOSIS IN ACUTE TUBERCULOSIS.

BY ALDRED SCOTT WARTHIN, M.D., PH.D.,
OF ANN ARBOR;
INSTRUCTOR IN PATHOLOGY IN THE UNIVERSITY OF MICHIGAN.

THE differential diagnosis between general miliary tuberculosis and typhoid fever is very difficult, and so closely do cases of the tubercular affection simulate the latter disease that it is no uncommon hospital experience to see them mistaken for cases of fever and treated as such. In the majority of these cases the true state of affairs is revealed only at the

post-mortem table. Points of differential diagnosis have therefore been carefully sought for, and it has been hoped that the examination of the blood in suspected cases might throw some light upon the question.

It has been demonstrated beyond doubt that in typhoid fever there is a constant diminution of the leucocytes; and the statement has been made by some writers that in acute tuberculosis the opposite condition of leucocytosis occurs, so that this has been made a differential point. Osler, in his *Text-book of Medicine*, in the paragraph on the diagnosis of general miliary tuberculosis, makes the statement that "leucocytosis occurs in acute tuberculosis, but not in typhoid fever." Laehr (*Berliner klin. Wochenschr.*, September, 1893) concludes that the practical importance of observations as to the existence of leucocytosis is evident, especially for the differential diagnosis between typhoid fever and pneumonia, meningitis, and perhaps also miliary tuberculosis. Many other writers state that leucocytosis occurs in all acute febrile diseases except typhoid, malaria, and sepsis, and only in these is there a constant diminution. But few of these observers have made any blood-counts in cases of miliary tuberculosis, and it is impossible to discover upon what ground they include this disease in the list of leucocytotic conditions. Rieder does not mention acute tuberculosis; neither does Limbeck. Neudorfer states that leucocytosis occurs in this disease only when accompanied by pneumonia, empyæma, suppurating cavities, or chronic anæmia.

On the other hand, Ewing (*New York Med. Journ.*, December, 1893) found that in acute tuberculosis resembling pneumonia there was no leucocytosis; and he emphasizes this as an important point in the diagnosis between these conditions. Cabot (*Boston Med. and Surg. Journ.*, March, 1894) makes a definite statement in regard to the matter, and says that in establishing the diagnosis between typhoid and tuberculosis the blood does not give us any aid. He was able to find in the literature only four cases of acute tuberculosis in which blood-counts had been made, and in none of these was there any leucocytosis. In one case of his own no increase of the white cells was found. Carter (*Univ. Med. Mag.*, October, 1894) says that infections show leucocytosis, with the exception of measles, typhoid fever, and tuberculosis. Zappert (*Zeitsch. f. klin. Med.*, 1893) records one case in which there was no leucocytosis and an absence of the eosinophiles.

During the past year two cases of acute miliary tuberculosis have come under my observation, and in both of these blood-counts were made for aid in establishing the diagnosis. In neither was there any leucocytosis; but, on the contrary, a constant and marked hypo-leucocytosis was found. Unfortunately, the exact records of the counts in the first

case have been lost, and in my notes I have only general statements in regard to the decrease of the leucocytes; but in the second case, which was studied from the beginning to the end of the disease, systematic counts were made, and the changes in the blood fully studied and noted. The blood-counts were made with the Thoma-Zeiss blood-counter in the usual way, using both the leucocyte-pipette and the one for the red corpuscles. The dilutions were made both with the Toison's solution and with dilute acetic acid. All possible care was taken to make the count as accurate as it could be made; and when any unusual results were obtained they were verified by several counts:

CASE I.—Mr. R. K., a student, aged nineteen years, was admitted to the University Hospital on May 5th as a case of typhoid. He had been ill for five days; before that time he had been entirely well. His illness began with nose-bleed, headache, chill, fever, and vomiting. The fever continued, and the general aspect of the case so closely resembled typhoid that the patient was sent to the hospital with that diagnosis. On admission he had a temperature of 104.5°; there was a marked typhoid condition; the abdomen was distended and tympanitic, and there was tenderness in the right iliac region. There was no eruption. The spleen was enlarged, extending three finger-breadths below the edge of the ribs. The patient had an almost constant cough, with little sputum. Numerous moist râles were heard all over both lungs, but the percussion-tone was everywhere clear. No diazo-reaction could be obtained from the urine. An examination of the blood showed a decrease in the number of the leucocytes. A provisional diagnosis of typhoid fever was made, and the baths were begun at once.

The patient remained in the hospital three weeks. During the first week it became evident that the case was not one of typhoid. Pulmonary signs and symptoms rapidly developed, so that four days after admission there was tympanitic resonance over the lungs, with blowing breathing and increased râles. The expectoration became profuse, and numerous examinations for tubercle-bacilli were made, but these were negative. During this first week many examinations of the blood were made, and at all times a hypo-leucocytosis was found. This was very striking in the stained covers; in ordinarily thick covers but few could be found. It was noted that none of these contained eosinophiles. Many covers of blood were also stained for tubercle-bacilli, with negative results.

Two weeks after admission and nineteen days after the first symptoms of illness elastic tissue and tubercle-bacilli were found in the sputum, and the suspected diagnosis of acute tuberculosis was confirmed. Death occurred after patient's removal home, seven weeks from the beginning of the disease.

CASE II.—Mr. H. G., a farmer, was admitted for tuberculosis of the genito-urinary tract. His right testis was removed on December 3, 1894. He bore the operation well, and on the next day his general

condition seemed improved; but two days after, his temperature, which had decreased after the operation, rose to 104°, and the patient passed rapidly into a marked typhoid condition of stupor and delirium. The spleen was greatly enlarged, and the diazo-reaction was many times obtained in the urine. Pulmonary signs soon appeared; there was marked tympanitic resonance, with râles and blowing breathing all over the lungs. No tubercle-bacilli were found in the sputum or in the blood, though diligent search was made for them. From the nature of the case there could be no doubt as to the diagnosis of general miliary tuberculosis. Death took place on January 6, 1895. The autopsy showed a typical picture of exquisite general miliary tuberculosis. There were also old suppurating foci in the right lower lobe and in both seminal vesicles. The right one was greatly enlarged, nearly four ounces of pus rich in tubercle-bacilli being obtained from it. The existence of these suppurating foci must be emphasized in connection with the hypo-leucocytosis, which was, as I shall show, constantly present.

Systematic blood-counts were made in this case during its entire progress, and I give the records of some of these in order to show the marked diminution of the leucocytes. These counts were made at least four times daily, on some days during every hour between eight in the morning and six in the afternoon. The count of the leucocytes varied greatly from hour to hour, as may be seen from the record; but from the great care used, and the verification of the results by repeated observations, these variations cannot be considered as the results of faulty technique:

Nov. 24, 11 A.M.	Leucocytes, 8000.
(Operation Dec. 3.)	
Dec. 6, 10 A.M.	Leucocytes, 3500.
" 12, 8 A.M.	" 5000.
" 18, 5 P.M.	" 3500.
" 22, 10 A.M.	" 5625.
" " 11.30 A.M.	" 4725.
" " 3 P.M.	" 5000.
" " 5 P.M.	" 3125.
" 24, 8.30 A.M.	" 3750.
" " 11.30 A.M.	" 3750.
" " 2 P.M.	" 2500.
" " 4.30 P.M.	" 2500.
" 25, 8 A.M.	Hæmoglobin, 80.
" " "	Red corpuscles, 4,125,000.
" " "	Leucocytes, 1875.
" 28, 5.30 P.M.	" 3750.
" 29, 10 A.M.	" 1250.
" " 2 P.M.	" 1250.
" " 5.30 P.M.	" 3750.
" 31, 12 M.	" 1250.
" " 6 P.M.	" 2500.
Jan. 2, 11 A.M.	" 1250.
" " 5 P.M.	" 2500.
" 3, 2.30 P.M.	" 600.
	(Hard chill.)
" 5, 8.30 A.M.	Leucocytes, 3750.
" " 11 A.M.	" 3137.
" " 4 P.M.	" 8125.
	(Moribund.)
" 6, 9 A.M.	Leucocytes, 10,000.
" " 10 A.M.	" 5625.
" " 11 A.M.	" 2500.
" " 12 N.	" 5625.

Patient died at 12.50.

These observations, chosen at varying intervals from the record, may serve to show the hypo-leucocytosis that was constantly present during the whole course of the disease. There was no decided relation between the temperature-curve and the number of leucocytes, though as a rule the highest counts were coincident with the highest temperatures. The very low count, 600, on the third of January, was confirmed by several examinations. At the time of the observation the patient was in a severe chill; his temperature was 104.5°; the surface of the body and the extremities were cold. The blood was very dark, and did not flow freely. A diminution of the leucocytes in the peripheral circulation during a chill has been noticed by other observers. The ante-mortem increase is also well known, having been many times observed.

The microscopical examination of the fresh blood showed many large swollen leucocytes, highly refractive; in several cases the nuclei could be seen slipping out of the cell. Many covers were stained, and differential counts made from these. These counts showed at all times an increase in the polynuclears and a diminution in the lymphocytes; no eosinophiles were ever found. The proportion stood usually thus:

Polynuclear and transitional forms	91.49 per cent.
Lymphocytes	5.22 " "
Large mononuclears	3.09 " "
Myelocytes20 " "
Eosinophiles	—

The observations made in these two cases confirm Cabot's statement that the blood does not give us any aid in the diagnosis between typhoid and acute tuberculosis. Whether the hypo-leucocytosis is a marked feature of the latter disease, as it is of typhoid, must be shown by further observations; but the fact that a decided diminution of the leucocytes is present should not in any doubtful diagnosis turn the scale in favor of typhoid fever; for these two cases certainly prove that there may be in acute tuberculosis, even when suppurating foci are present, a hypo-leucocytosis even more marked than that usually seen in typhoid. Therefore, though we are as helpless as before, so far as the differential diagnosis is concerned, these observations may serve in extending our knowledge of the tubercular affection, and save us from drawing conclusions based upon a misconception of its nature.

Further, this great decrease in the sum total of the leucocytes, with relative increase of the polynuclears occurring in a severe and general infection, leads to many interesting speculations. Is there an absolute decrease of the white cells, or is the decrease limited only to the peripheral circulation? Are the cells destroyed, or is the leucocyte-forming power of the body diminished? Do the swollen leucocytes

from which the nuclei can be seen escaping mean that the cell is being broken up—that nucleus, or some other antitoxin or germicide, is being set free—that the process is part of the body's antagonism to infection? These questions, so important to us, because of their relation to the treatment of disease, can be answered only by more extended and detailed study of leucocytotic conditions.

LABORATORY OF CLINICAL MEDICINE,
UNIVERSITY OF MICHIGAN.

NOTE.—Since the above was written, the second edition of Osler's text-book has appeared. In the chapter on "Acute Tuberculosis" the statement quoted above has been modified to the following: "The blood may show a slight leucocytosis, but in the very acute cases where there are no suppurating foci this is absent."

DOUBLE CASTRATION FOR HYPERTROPHY OF THE PROSTATE, WITH REPORT OF A CASE.¹

BY CARL MEYER, M.D.,
LECTURER ON PATHOLOGY IN THE GROSS MEDICAL COLLEGE,
DENVER, COL.

CASTRATION is an operation as old as mankind; castration for the special purpose of reducing the hypertrophic prostate gland is a surgical success of the last two and one-half years.

Its surgery is a science of facts, and not of theoretical suggestions. The unquestionable honor of having performed the first double castration with the clear and distinct aim mentioned above belongs to the Norwegian surgeon, Ramm. To the Philadelphia surgeon, White, on the other hand, belongs the honor to have been the first to suggest the operation theoretically; but while White was still busy with his experiments on dogs, Ramm had already performed the operation on man.

Haynes, Fremont Smith, White, Finney followed and reported successful cases, and by and by the operation was performed by many surgeons all over.

Wassidlo, early in 1895,² published a series of forty-three successful operations, the ages of the patients ranging from sixty to eighty-one years. Before the operation there was great difficulty in emptying the bladder and more or less cystitis. In all of the forty-three cases castration was performed on both sides, and an improvement in the cystitis and micturition always resulted a short time after the operation. In all cases there was shrinking of the enlarged gland.

White, in his last paper, "The Results of Double Castration in Hypertrophy of the Prostate,"³ re-

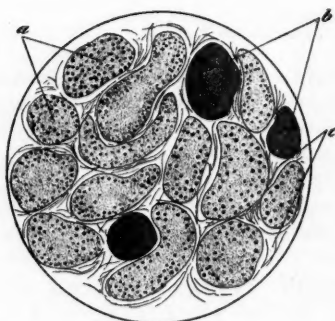
¹ Read before the Medical Society of the City of Denver and the County of Arapahoe.

² Centralblätter für die Krankheiten der Harn- und Sexualorgane.

³ Annals of Surgery, July, 1895.

SEMINIFEROUS TUBULES.

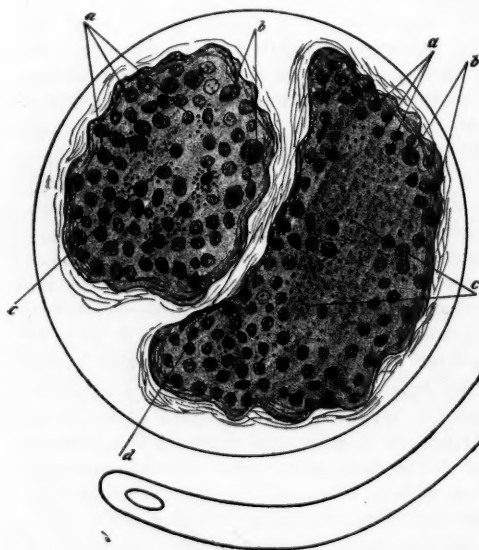
A.

Cross-section. $\times 120$.

a. Immigrated round-cells. b. Hyaline masses. c. Intertubular connective tissue.

SEMINIFEROUS TUBULES.

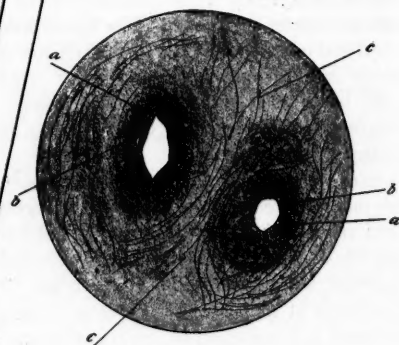
C.

Cross-section. $\times 400$.

a. Immigrated granular round-cells. b. Immigrated round-cells with nuclei. c. Fatty degeneration. d. Intertubular connective tissue.

BLOODVESSELS.

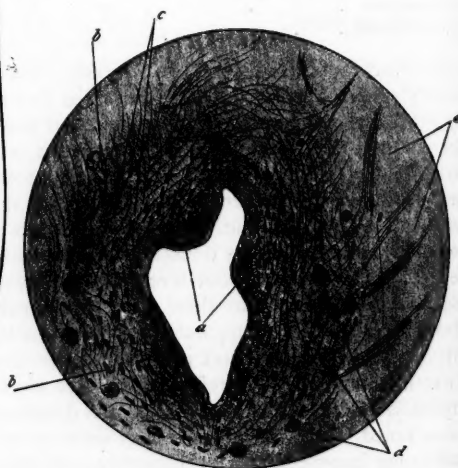
B.

Cross-section. $\times 120$.

a. Intima. b. Adventitia. c. Fat-tissue.

BLOODVESSELS.

D.



Andrews' Catheter

a. Fatty degenerated intima. b. Thickened adventitia. c. Nuclei of new connective-tissue cells. d. Immigrated round-cells. e. Fat-tissue.

DR. CARL MEYER, *Fecit.*

ports 111 cases, with a mortality of 18 per cent. (20 deaths); but on 13 of these 20 the operation was performed *in extremis*, or as a last chance, and the remaining 7 died of morbid changes of the kidneys and bladder which would have proved fatal without operation.¹

The fact that hypertrophy of the prostate gland is in very many cases the direct cause of retention of urine and cystitis, ailments which are among the most troublesome and dangerous diseases of elderly people, has resulted in the proposition of many different operations, but their value cannot be compared with double castration.

The *cystotomy* with drainage and a permanent fistula is not a radical operation because the hypertrophied prostate is not reduced.

The *perineal prostatotomy*, or rather enucleation of the prostate, has only a mortality of about 5 per cent., but is often followed by a painful fistula.

The *suprapubic prostatectomy* is a dangerous operation and also followed by a fistula.

The destroying of a small part of the hypertrophic prostate by the *galvano-caustic methods* from the urethra will reduce only a little of the gland.

Ligation of the whole spermatic cord or of the spermatic artery is sometimes followed by gangrene, and its effect on the prostate is also doubtful.

The *subcutaneous section* of the vas deferens seems to have some reducing influence on the hypertrophic prostate, but it does not act so promptly as double castration, and, besides, it destroys also the physiological functions of the testicle.

Under certain conditions and in cases where we want a prompt and radical result of our activity, in cases, too, where the physiological functions of the testicles do not play any rôle, the double castration may be considered as the ideal treatment for hypertrophy of the prostate.

But the operation itself should be limited to severe cases of cystitis with more or less complete retention of urine, to cases not too far gone nor complicated with important morbid changes of the kidneys, as pyelonephritis or uræmic poisoning, otherwise the result will be a bad one, and the operation discredited.

To perform double castration on an emaciated individual in the stage of uræmic poisoning, or in a case complicated with pyelonephritis or other severe morbid changes of the kidneys, is as foolish as to perform tracheotomy in a case of membranous croup of the lower bronchial tubes, or in a case of general diphtheria.

If we are careful in selecting our cases which

answer the above-mentioned indications, cases which will not succumb to other morbid changes of the organism a few days after operation, double castration will not have a mortality of 18 per cent., but will be a life-saving operation; but if we perform double castration just because an individual has retention of urine, cystitis, and a hypertrophied prostate, and if we neglect to study carefully the conditions of the other organs, in many cases the patient will die, and the operation will become discredited.

The question arises: Can we explain the effect of castration on the hypertrophied prostate?

White, in the above-mentioned paper, summarizes his opinion as follows:

"The function of the testis, like that of the ovary, is twofold: 1, the reproduction of the species, and, 2, the development and preservation of the sexual characteristics of the individual.

"The need for the exercise of the latter function ceases when full adult life is reached, but it is possible that the activity of the testis and ovary in this respect does not disappear coincidentally, and that hypertrophies in closely allied organs like the prostate and uterus are the result of this misdirected energy, etc."

With this opinion White stands not alone. But analogies are not explanation, nor can experiments on young, powerful dogs, full of vitality, be compared with operations upon old men with chronic cystitis, retention of urine, and other morbid changes; and last, but not least, the physiological and anatomical relations between ovary and uterus are of a much more delicate and closely related character than those between testicle and prostate. I cannot believe in a misdirected energy where we have to deal with cystic and fatty degenerated organs in the stage of chronic inflammation (*vide later*).

Other authors claim that the effect is entirely due to some unknown influence from the central nervous system. Again, I cannot believe that the removal of a fatty and cystic degenerated organ which has ceased to fulfil any physiological functions, the removal of which, too, has no influence at all on the body or mind of the individual, can have such an effect on the central nervous system as to produce an *immediate* shrinking of another organ.

I think it must be possible to find the real cause of the fact in some anatomical or, better, pathological change of the respective tissues; and after a careful investigation in my case I believe this cause can be found in "pathological alterations of the circulatory system to some extent already existing before the operation." It is a fact that after every operation on the testicles the scrotum undergoes atrophy; it shrinks to a small lump of connective

¹ White's table shows: 14 deaths from uræmia, 2 from pneumonia, 1 from nephritis, 1 from exhaustion, 1 from heart-failure, 1 from hemiplegia; total, 20.

tissue, fatty tissue, and skin. Not only the scrotum, but the penis too becomes smaller, and also the prostate gland. Very often after castration the patients complain of a cold feeling in the penis, as did my patient.

Now, atrophy is mostly a consequence of incomplete and imperfect nutrition and circulation, either from want of oxygen or from some morbid changes of the bloodvessels.

Through castration a large number of bloodvessels, besides the spermatic artery and nerves of the dartos, are altered in such a way that many of them become obliterated, and thrombosis takes place; and this thrombosis, especially of the veins, may extend to some of the veins of the prostate gland, as there are numerous anastomoses between the venous plexus pudendalis and vesicalis. When the bloodvessels are obliterated not only the smaller veins, but the capillaries and arterioles, as well as the respective tissues, are deprived of the necessary supply of blood and atrophy—fatty degeneration—is the result.

Such obliteration of the bloodvessels may also result from a *direct nervous influence*. We know that the plexus prostaticus of the sympathetic nerve is in close connection with the plexus vesicalis, which also gives branches to the vas deferens. These plexuses contain vasomotor fibres, irritation of which is followed by "narrowing" of the respective vessels. Without doubt the bloodvessels in cases of chronic cystitis and hypertrophied prostate are already in such a morbid condition (mostly fatty degeneration and chronic inflammation of the vessel-walls) as to be "immensely predisposed to the formation of thromboid obliteration."

And from such pathological facts, I believe that the "real cause of the shrinking of the prostate gland after double castration is *impaired nutrition*," as a consequence of obliteration of the bloodvessels caused by a combination of the reasons above mentioned.

Report of a case:

Mr. J., from Denver, aged seventy years, called at my office complaining of a complete retention of the urine for the last two or three days. Patient is a robust man, and claims never to have been sick except for various ailments of the bladder. As a schoolboy patient had been troubled with a urinary disease of an unknown character. He remembers very well that his abdomen became swollen and that during the school-hours he frequently had to go out to urinate. As a soldier he was sometimes unable to serve as a sentinel, because he could not hold his urine for two hours of duty. In this time he had several gonorrhoeas and strictures, but no syphilis. Afterward he lived as an innkeeper and farmer; free drinker of beer and wine; is

married and the father of healthy children. In the last few years his condition has become worse; urination is more frequent and causes him to rise six or eight times each night. The passage of an ounce or two of urine was always the result of active abdominal compression and frequently attended by defecation.

In the latter part of September the patient, while fishing, stood for several hours up to the hips in cold water, resulting in complete retention of urine.

Examination. Bladder forming a round, pear-shaped tumor, easily recognizable on inspection of the abdomen; top of the bladder reaches the navel; whole region sensitive to touch. The rectal examination shows an immensely enlarged, hard prostate gland the size of a man's fist. Left lobe especially enlarged. The covering mucous membrane is very tight and closely adherent to the gland.

After injection of $\frac{1}{2}$ per cent. cocaine in the urethra (which always may be used before catheterization in difficult cases), I relieved the patient of $5\frac{1}{2}$ pints of urine, of a dark yellowish-color; specific gravity 1024; alkaline reaction; abundant, whitish sediment; traces of albumin. The catheter, before entering the bladder, slipped through a narrow, hard mass, at least one and a half inches in length, at which place patient had a peculiar gnashing and crashing feeling.

The microscopical examination of the urine showed the presence of chronic purulent cystitis, but no symptoms of nephritis.

Therapy. As the retention proved to be complete, and as it was impossible to apply a soft, permanent catheter, the bladder was emptied and washed out every twelve hours. As a few days later it became impossible to introduce either a normal, a prostatic, or a flexible catheter, I got, by the courtesy of Dr. See, a catheter of an old type, which was recommended for such desperate cases long ago by Dr. Andrews, of Chicago. The application of this catheter was astonishingly easy.

As the patient was unable to apply the catheter himself, as the cystitis did not greatly improve, and as about a week after beginning treatment patient had two chills, with a rise of temperature to 100° and some somnolence, I insisted on double castration, which was performed on October 12th in the usual way.

The removed testicles were both degenerated on the surface, small cysts covering the tunica vaginalis propria; these cysts were filled partly with a mucoid and partly with a colloid substance. On the right testicle we found a hydrocele, tunica propria thickened; also tunica albuginea; glandular part of the testis atrophied, of a fatty, white, gross appearance; walls of the vas deferens of the spermatic artery thickened; lumen of the arteries gaping.

Microscopical examination after hardening in alcohol and staining with hæmatoxylin: Interstitial tissue of the gland not hypertrophied; seminiferous tubes partly fatty degenerated, partly filled with immigrated round cells, of a homogeneous or gran-

ular type, some with distinct nuclei; epithelium of the seminiferous tubes not recognizable; no spermatozoa; some seminiferous tubes are obstructed with a homogeneous light mass (hyaline). Chronic parenchymatous inflammation, fatty and hyaline degeneration.

Vas deferens: columnar epithelium absent; lumen of the vas very small; layer of connective tissue much thickened, partly with formation of new connective tissue. The vessels (especially the arteries) of the spermatic cord show no endothelial lining; the whole wall is a very thick layer of connective tissue, with newly formed connective-tissue cells, partly with some immigrated round cells; in a few places we see fatty degeneration in the vessel-wall near the lumen; chronic inflammation of the vessels. (*Vide drawings*.)

The patient recovered nicely from the operation, the wound healing by primary union. The bladder was irrigated twice daily until the twelfth day. On the sixth day there was a voluntary discharge of a half-drachm of urine, and on the following day of several ounces. Further use of the catheter was unnecessary after the twelfth day, when shrinking in the prostate gland was easily recognized. After five weeks this body was one-half to two-thirds its former size, much flattened in shape, and the mucous membrane overlying it freely movable.

Patient declares that never in the last fifty years could he hold his urine as long as he can now (five to six hours). Micturition is of a normal character, with a strong stream. Bladder-wall contracts after emptying.

Urine: Clear, light, acid; specific gravity 1.016. Very little sediment, consisting of a few round cells.

This I call an ideal case in every particular, showing clearly and distinctly progressive ailment of about fifty years' duration, which presented an absolute indication for some surgical procedure, not only for the relief from the local disease, but from the threatening uræmic poisoning, which certainly in a few days more would have rendered any operation useless.

No matter what difference of opinion may be entertained by surgeons upon this point, such cases as this indicate forcibly that double castration should be regarded as a standard treatment for hypertrophy of the prostate gland.

As the operation itself, done properly and in time, involves no danger, but in every case is life-saving, it should be performed without hesitation, at least in all cases where the physiological functions of the testicles are nearly or entirely gone.

NEW YORK is being congratulated from every direction on her good fortune in securing the services of Dr. John S. Billings as Chief Librarian of the Consolidated Libraries of the City. Dr. Billings will here find a congenial field for the exercise of his superior powers of organization.

THE PATHOLOGY OF SOME UNUSUAL CONDITIONS IN ACUTE STRANGULATED HERNIA.¹

BY F. CAUTHORN, A.M., M.D.,
OF PORTLAND, OREGON;

VISITING SURGEON TO ST. VINCENT'S HOSPITAL; SURGEON N. F. R. R.;
LATE PROFESSOR OF SURGERY, MEDICAL DEPARTMENT OF
WILLAMETTE UNIVERSITY, ETC.

It is not my intention, in presenting this paper for your consideration, to enter into a discussion of the subject of hernia in general, however important the subject may be from a surgical standpoint; but rather to call attention to some special conditions that I have met with in practice that are not fully considered in any work on surgery with which I am familiar. As the result of this experience, I have been led to draw certain conclusions as to the pathology, diagnosis, and management of these conditions, which I have for some time wished to bring to your attention, that we may thus compare notes to our mutual advantage.

I am sure that there would be but little difference of opinion between us as to the management of a case of strangulated hernia presenting all the cardinal symptoms, as represented by an increase in size of the hernial tumor, pain, irreducibility, and absence of impulse, associated with evidence of shock and vomiting, going through its various degrees up to the stercoraceous. We are seldom at a loss as to what to do in typical cases of any disease. It is the atypical case, the one that in many essential particulars conforms to the rule, but in many others does not, that puzzles the judgment and causes too often a fatal delay in instituting the proper procedures for its relief. It has been my peculiar fortune to meet with several such cases of strangulated hernia; in fact, with such a number that I am inclined to believe these conditions prevail to a larger degree than is commonly thought. In the first place, there are various degrees of strangulation—an essential point to be borne in mind. In its simplest degree it is merely a constriction sufficient to occlude the caliber of the intestine, without marked disturbance of the blood-supply. In its most exaggerated form it is the complete arrest of the circulation in addition. Perhaps in those cases of acute hernia brought on by violent efforts in a person not before subject to a hernia the second condition prevails almost from the beginning. Of cases of acute strangulation of previously existing hernia, I believe the great majority go through all these degrees, if left to themselves.

Before proceeding further I desire to say something of the pathology of strangulation in general.

I think we may set it down as a fact that it is never due to an actual contraction primarily of the neck of the sac or the surrounding tissues—a theory

¹ Read before the Oregon State Medical Society, June, 1895.

that was so long held. There is a *relative* narrowing of the neck of the sac by reason of an *absolute* increase of the contained parts. Let us consider for a moment how this comes about. A man suffering from a reducible rupture undergoes some severe exertion, and finds that the hernia is no longer reducible. A larger amount of the intestine than usual is forced into the neck of the sac, which we may suppose has yielded of its own resiliency, however slightly, and now makes constriction at this point by just this amount of resiliency. The return of venous blood is impeded—not stopped entirely—and a passive congestion of the gut ensues, with swelling. The constriction is increased *pari passu* with this increase in size of the tumor, *relatively* but not *absolutely*, until the caliber of the gut is occluded. The congestion being within the sac, more intestine may be forced through the neck by coughing or bearing down, and thus the hernial tumor may be sometimes indefinitely increased in size; but when the taxis is employed we find we can only reduce this superadded and uncongested portion. As the congested part approaches the neck there is not room to accommodate it, and the contents of the intestines, flatus or gas, are stripped back, thus forming an insuperable obstacle to complete reduction.

This is the explanation I have to offer of those cases in which there is impulse on coughing, with possible increase in size of tumor, and in which from lack of complete obstruction to the blood-supply there is absence of the more severe symptoms of shock and vomiting, etc., in the early stages.

The condition is only remediable by operation, and is a very deceptive one, and too often causes a delay by the absence of the typical signs of strangulation. Its recognition is not a matter of so much importance to the surgeon who would operate early in any case of hernia that could not be reduced; but, unfortunately, this view is not held by many general practitioners, and thus they are deluded into temporizing with hot and cold applications with opium, and repeated trials of the taxis, until the last degree of strangulation is reached, and irretrievable damage has been done.

The general outlines of the following case will illustrate what I have tried to say in regard to these cases of partial strangulation:

I was called to see Mr. P., aged sixty-six years, who had suffered for years from a rupture. Six days previously he had, while at work, suddenly felt his rupture come down, and experienced a severe, sharp pain at the same time. His own efforts at taxis failed, and a physician was called, who arrived several hours afterward, and who also likewise failed at reduction. However, after a few hours the local pain and soreness subsided. There was

occasional vomiting, bilious in character, four or five times in the twenty-four hours, until the day upon which I saw him, when it became suspiciously stercoraceous. He was comfortable, but weak. A local examination showed a moderate hernia, which gave distinct impulse on coughing, and which could be increased in size indefinitely by bearing down. Efforts at taxis were followed by easy reduction of the larger part of the mass, but at the internal ring there always remained a perceptible amount that could not be reduced. His medical attendant stated that this had been the history of the case since its beginning. An operation was performed, and the condition described was found. The gut was congested and thickened, but not to such an extent as to endanger its vitality. The patient lived about thirty-six hours, and died of exhaustion incident to inanition and the prolongation of the mild degree of shock. There had been during the whole time no really alarming symptom, except the inability to reduce the tumor completely, and the very gradual progressive exhaustion.

The moral I would have drawn from this case is this: *No matter how mild the constitutional symptoms, no matter how nearly the rupture may be reduced, if it cannot be entirely reduced, do not wait more than a few hours before resorting to operation.*

The other and more important class of cases to which I wish to call your attention is represented by the so-called "reduction en masse," or "en block," or the "properitoneal hernia" of Krönlein," and I wish to introduce what I have to say on this subject by giving an outline of two cases that I have met with:

CASE I.—A steamboat-man, about thirty years of age, had suffered for years from a rupture, for which he had worn a truss. While trucking upon the boat his hernia came down, and was reduced by a physician and the truss reapplied. After a day or two's rest in hospital he again went to work, but complained that things did not feel right at the site of the hernia. An examination failed to show the presence of the hernia. The rings were very much enlarged, and lay directly over one another, as in old herniæ, thus leaving a direct opening into the abdomen. The finger could be passed into the abdominal cavity to its full length, and twisted around without difficulty. He presented some symptoms of strangulation, however, in the way of vomiting, etc., and was sent to the hospital, and came under the care of Dr. G. B. Young, formerly U. S. M. Surgeon at this station. By the following day his general symptoms were all worse, and Dr. Young asked me to see him again. The local condition was the same as the day before. *Percussion* over the ring gave distinct dullness, which at the time was difficult to account for, but it suggested that something was wrong at this point, and this, together with his general symptoms, caused us to operate and ascertain the condition. The sac was found entirely within the abdominal cavity, the neck—the point of constriction—having been sepa-

rated from its attachments at the ring, lying fully four inches away from the abdominal wall. (*Vide* Fig. 1.) An amount of intestine represented approximately by the size of the fist was strangulated, and very much congested and thickened. The neck of the sac was pulled up and cut. The blood-supply soon re-established itself, and the intestine was returned. The patient made a good recovery.

CASE II.—A man, about fifty-years years old, had suffered for years from hernia. He had worn a truss which had kept it in place. Six days before I saw him his hernia had come down and had been reduced, but he complained of pain within the abdomen on the same side. The canal was patulous, and the finger could be pressed up to and within the internal ring, meeting at this point with an elastic tumor. General condition was extremely bad; there was profound prostration of the nervous system, stercoraceous vomiting, etc. Percussion showed dullness over the internal ring, which extended toward the median line, well behind the rectus muscle. Diagnosis was made of strangulation within the ab-

The progressive sepsis that was present at the time and profound prostration continued, and the patient died in about thirty-six hours.

An earlier recognition of the condition would undoubtedly have been successful as in the other case.

The only difference between the two cases consisted of the greater amount of serum in the latter case, the sac being distended by it to its full capacity.

Pathology: The two cases present the following peculiarities: In both cases the sac was entirely within the abdomen, the neck being removed from the internal ring by several inches. The question arises, How is such a condition brought about? These cases were both cases of long standing, and both had worn trusses for years. It seems to me that in this fact lies the solution of the problem. The element of time, combined with the pressure of the

FIG. 1.

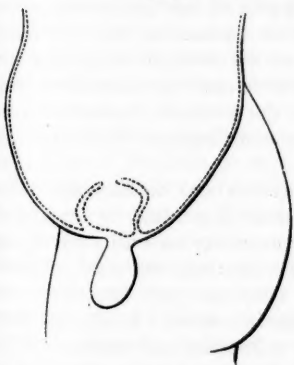


FIG. 2.

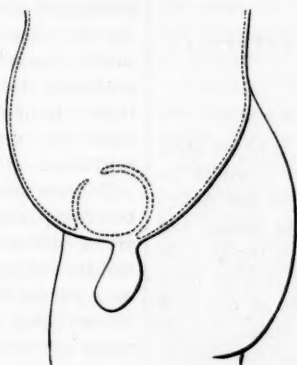
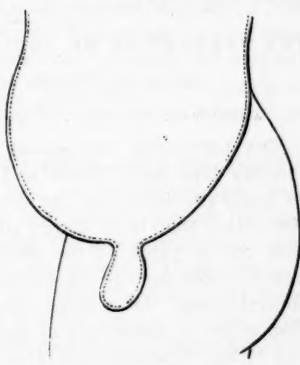


FIG. 3.



domen, and although well-nigh hopeless an operation was advised and done. A free incision was made with the upper limit well above the internal ring, and all the structures cut down to this point. The various components of the cord were recognized, but I confess to have been sorely puzzled at the entire absence of anything that looked like a hernial sac. The internal ring was enlarged, and just within presented this elastic cyst-like tumor. I determined to find out just what condition of things was present, and very carefully cut into this tumor, which proved to be the intensely distended hernial sac. There was an immediate escape of a large amount of bloody, foul-smelling serum, and a mass of intestine of the size of the double-fist, black and gangrenous, presented. The neck of the sac was found to lie well behind the rectus muscle, and nearly in the median line. (*Vide* Fig. 2.) It could now be lifted up and brought forward, which was done, and the constriction cut. Some ten inches of the sphacelated gut was removed, and on account of the condition of the patient the two ends were stitched to the external wound, and the operation hurriedly completed.

truss, supplies the essential conditions. Upon the first appearance of the rupture, and while the sac is small, the truss is applied. This keeps the hernial mass within the abdominal cavity. Let us suppose a certain degree of laxity of attachment of the neck of the sac to the internal ring. A small amount of intestine may then find its way into the sac, but is prevented from coming down by the presence of the truss. The pressure thus exerted presses the neck back from its attachment to the ring, and thus as it recedes the hernial sac increases in size and comes to lie entirely within the abdominal cavity. The conditions determining strangulation are, of course, the same as in any other case of rupture, except that the constricting tissues are solely the puckered folds of thickened peritoneum at the neck of the sac.

I wish to emphasize the importance of *percussion* in recognizing this condition, as it is the point of most importance, and one which I have never seen referred to in this connection. It has been resorted to to determine the contents of a hernial mass exter-

nally, but not to determine the presence of *internal strangulation*. If percussion over the internal ring gives dulness or flatness, it indicates the presence of something abnormal—in this case the presence of congested intestine with more or less serum in the sac—and if associated with other symptoms of strangulation indicates the site of the trouble. Again, it should be of value after reduction as indicating whether the reduction is complete or merely the return of the sac with its contents into the abdominal cavity.

It seems to me that these two cases strongly indicate that all cases of reduction en masse are simply the return of the intestine into a preformed sac, which, under ordinary circumstances and under the pressure of the truss, normally lies within the abdominal cavity. I cannot believe that taxis ever strips up the neck of a sac primarily as our textbooks would have us believe.

The accompanying diagrams may help to elucidate what I have attempted to explain in regard to the above conditions.

THE PREVENTION OF SOCIAL DEFECTIVES.¹

BY R. M. PHELPS, A.M., M.D.,

OF ROCHESTER, MINN.;

ASSISTANT SUPERINTENDENT, MINNESOTA STATE HOSPITAL.

THE purpose of the present paper is to set forth forcibly how much better and easier it would be to apply prevention to the problem of our defective classes than to let things go as they please, and then try to patch up the results; to try to prevent the existence of defectives, than to cure their defectiveness. Of a given population of one million souls in almost any of our fair States, including idiots, imbeciles, epileptics, insane, deaf-mutes, and certain of reform-school children, there may be fairly estimated to be about six thousand so definitely defective that the defectiveness is clearly apparent to all about them. This is about one person in every one hundred and seventy. I have made a roughly approximate estimate, formed from the opinions of others, variously secured. Estimating in this way, we can make out a table about as follows:

Most appropriately called defectives—

1. Idiots, imbeciles, and feeble-minded	1.50 to 1000
2. Deaf-mutes	.67 to 1000
3. Insane	2.00 to 1000
4. Epileptics	1.50 to 1000
5. Pervers and defectives of reform-school type

More loosely called defectives—

6. Blind	.97 to 1000
7. Deformed or paralyzed
	6.64 to 10000

¹ Presented before the Minnesota State Conference of Corrections and Charities, at Faribault, Minn., October 30, 1895.

Sometimes included as defectives—

8. Paupers (in almshouses or quite fully supported)	1.32 to 1000
9. Tramps	.75 to 1000
10. Inebriates, extreme	1.00 to 1000
11. Criminal classes (in prisons)	1.16 to 1000
	10.87 to 1000

To this may be added, as largely dependent rather than defective—

12. The helpless aged	50.00 to 1000
13. Children under twenty years of age	450.00 to 1000
14. Physically sick at any time	40.00 to 1000
15. All others doing nothing, wholly dependent.	

The "defectives" are, of course, only a small portion of that larger class called "dependents," which must include at any one time all physically sick, all young children, as well as all the healthy people who, for one reason or other, are relaxed into complete dependence. Broadly speaking, each productive working-person has to support not only himself, but one other person in a state of dependence. So ground into our system of living is this subject of dependence that we never think of rebelling at the need of supporting the criminals, the defectives, and our dependent relatives. Immense as the question is financially, we must here drop the consideration of it with this reference.

But the mental defects and the mentally defective ones, though not all dependent by any means, are a blot on our humanity—a reflection on our mental integrity as a race and our good judgment as a generation. They not only carry the most bitter regrets possible into many a family, but they reach out in their reflections and insinuations till we all shrink lest we be tainted with a like curse.

What are the causes of all this defectiveness? and, more especially, What can we do about it? are questions, the central elements of which have been largely suppressed in public considerations, but which we think ought to be fully discussed. Idiocy, imbecility, feeble-mindedness, perversions, and epilepsies undoubtedly do *not* exist without causes, but these causes are unfortunately in their histories obscured. It is here that we begin to touch on that subject, "heredity"—a subject which so touches the bare nerves of each one of us that we feel like shrinking; and, indeed, most people do shrink and avoid its consideration, and yet, because so vital, it is most useful to study. It *does* make some difference to the child what kind of man and woman his parents are; nay, more, this makes more of difference than any other cause one may mention. Heredity is not a freakish and occasional thing, showing itself only by peculiarities of feature or of conduct, but it is a *steady and constant element* that gives a trend to the whole of

a man's constitution. That one should not inherit is the exceptional and strange thing. All that we start out with is inherited, not merely some striking peculiarity. Some form is inserted into the elements of our bodily structure, by which they not only start out poorly or well, but by which, moreover, they are influenced throughout life; by which, even late in life, they fall before insanity, or consumption, or other elements. Moreover, heredity must be considered not by following insanity alone, nor epilepsy alone, nor imbecility alone, but by all those and the many others which depend on nerve- and brain-structure, each of which may be handed down changed to any other.

So many defectives are there that the subject reflects upon many of us in an unpleasant way, and we will likely try to thrust it back; but to do this is but to invite their continuance. To clean up the record for future generations we must *study*, not ignore, this cause; nay, we must even face *our own peculiarities*. Logically, if inheritance is a cause of defectiveness, we should study the subject with all its relations, both personal and general. Taking, first, the grosser forms of insanity, imbecility, and early epilepsy, defectiveness in one or both parents is undoubtedly a most important cause. Sometimes this defect is evident to everyone; often it lies back as an insanity or as a yet undeveloped liability to insanity; often, moreover, it lies as some partially developed defectiveness in one parent fully developed in a child, still as a true heredity. At times some debilitating physical disease invades the nervous system of the parent, like consumption, alcoholism, or syphilis, and the offspring are neurotic, epileptic, or eccentric in some way. In the subject of insanity I am often pointed to our statistics showing only about 25 per cent. as inherited, and am asked why statistics do not more fully uphold my statements. The reasons are as above. Many parents die before insanity develops. If a man is only half insane—that is, defective in a medium or mild degree—and his son is insane, going to an asylum, the case is rarely reported as an inheritance. On the other hand, if the man is insane and the son only defective in a moderately feeble or erratic way, it is also rarely reported. If a man is syphilitic or grossly inebriate, and a son is insane, it is not counted. If a son is insane through any more temporary parental cause, it is not reported; and, again, in many cases well-known facts are suppressed or misrepresented by the parents, sometimes through ignorance, sometimes because of the stigma thereby attached. Finally the histories of our patients are comparatively unknown; rarely can we personally judge of the parents.

Right here we will be asked what defectiveness includes, any way; and we would say, as simply

and untechnically as we can, that *it is the lack of the full development of one or more of the faculties, usually mental, sometimes physical, or the irregular, imperfect, or unbalanced development of them*. We in this discussion include insanity as well as imbecility. At once, too, as a flash will follow in the logical mind the question, Are we any of us *perfectly* balanced or perfectly developed in all our faculties?—a question that is fundamental, and one which the psychologist must face even if the untrained popular observer is content to slight as too technical and quibbling a point. By scriptural warning, and all popular thought, we have been so many times told that “no one is perfect” that the practical application would seem to follow, almost inevitably. That men are of “all degrees of ability” is commonly said; that children are of all “degrees of brightness” is also a common expression; but that men are of differing degrees of “debility,” or at times of *insanity*, and that children are of differing degrees of *feeble-mindedness*, can rarely be found in the written language. Does not one involve the other to a certain degree, even as mountains involve the existence of valleys? “Abilities” are not commonly due so much to differences in application as to differences in native ability.

It is, however, the cases in which these disabilities become *gross* that we are considering, and those only. We do not wish to confuse the line between disability and disease unnecessarily, nor more than the facts will permit. They mingle a good deal, whether we admit it or not, and more so in mental than in physical lines. We feel little sympathy for the Nordau type of criticism, yet recognize the above fact as giving it a partial foundation.

Next we ask ourselves, Can these forms of defectiveness (meaning now the grosser defectiveness) be induced by some cause acting after birth? Mental as well as physical impairment certainly can be induced by head-injuries and severe diseases, but such defects are usually of rather different type. Moreover, ordinary causes rarely can produce feebleness of mind, except a predisposition exist; in which case the predisposition is essentially the cause, and *predisposition* is usually a true heredity, as yet undeveloped. Among such causes we may name prominently fractures of the skull, sunstroke, typhoid fever, and scarlet fever.

In general, then, we would find the most common cause of defectiveness to be an inherited constitution; which may be in the one case an eminently defective one, in the other case one easily liable to defectiveness or which tends toward it later in life. It will, perhaps, disappoint some if I do not dilate upon inebriety, dissipation, sexual vices, and our o-called fast living of modern life, as causes of

defectiveness, and, perhaps, also upon such causes as severe diseases, changes of the climate, etc. But the final point is that even these seem to need the inheritance of a susceptible organization in order to be effective. For example, of twenty-five men who drink equally under equal conditions, at a rough estimate, only about one shows mental failure. Is it not the different inherited constitution that determines this? I think you will find it so. And so you will find it throughout the list. Even the criminal classes are, by some popular literature, held to tend toward criminality by reason of direct or indirect inheritance.

The subject of prevention then seeks for causes, and the causes point us toward, first, one's inheritance; secondly, that right living which seeks to prevent the fruition of that inheritance.

Under the first section, we would say that we consider that the time is ripe for such legal measures as one which will *prevent the marriage of an epileptic, or of one who has suffered from an attack of insanity*. Perhaps this is as far as I should venture at the present time, lest the timid ones overwhelm the whole motion with their objections. I do not doubt, however, that in some future time laws will go much further than this, for it is very doubtful if persons with pronounced tuberculosis of the lungs should marry. Children of the insane are occasionally in a painfully doubtful position. Many other thoughts suggest themselves.

I do not attempt further argument for such a law than is contained in the preceding statements. If the children of an epileptic were *always* epileptic or grossly defective, doubtless I would have few objections. Likewise, if the children of the insane were *always* insane or otherwise defective. But we think that the claim that a certain proportion, say 25 or 50 per cent., will show defectiveness is argument enough. Especially as to the alienist minor defective strains are noticed in others of the family. I have purposely made the above statements rather bluntly. You are left to consider, first, if such statements are true; secondly, if being true, should not such laws as are above mentioned be enacted?

The first part of our prevention, then, is that we have laws to prevent the transmission of the more gross defectiveness. The second part of the preventive measures leads us toward an *education* of people which shall induce them voluntarily to avoid marriage or offspring because of consumption, insanity, inebriety, etc. However, if persons are grossly defective mentally, such education will not be of value to them, their minds being too defective to be so controlled. In many cases, however, it will do good.

The main educating element, however, is toward bringing the *people, as a whole*, up to the point of sustaining and approving all measures for good

mental health, hygiene, and prevention. To the medical mind the ignorance is stupendous as yet. One need not cite the suicidal action of alcoholics to confirm this, nor the frequent upholding of gross defectives as being sound in mind, so often noted in work among the insane. This paper itself, indeed, is but an attempt toward educating people to sustain firm measures, because bringing to them a clearer insight of bad effects.

To avoid leaving this as a mere theoretical treatment of the subject, let me consider a few facts. Many people will say of a defective, "he got this from his father or mother," but will not think to take the next fairly logical step—"his father or mother ought not to have married." Among domestic animals no such degeneration of stock is allowed. How many of us will realize how forcibly these things press upon us? How few of us realize that in the last ten years about five thousand people were discharged from the insane hospitals of this State alone, about two thousand of whom were already married, and most of the rest free and of age to marry. Probably during the ten years the institution-insane alone have become parents of five thousand children, 25 to 50 per cent. of whom will probably before death show some defectiveness. This is but one item. They were parents of about an equal number before becoming insane. There are also the insane who have never been committed to an institution, probably numbering one thousand in this State at any one time. There are the imbeciles and epileptics of marriageable age, living outside of institutions, numbering many hundreds, and probably another thousand. And what shall we say of such of the graduates of reform-schools as are perverts, of those having gross nervous diseases, of those in the later stages of consumption, of the grossly inebriate, as well as the ill-cared-for children of paupers, of prostitutes, and the many illegitimate births, with their uncertain and often impaired inheritance. The census of 1880 claimed about one in every one hundred people of all ages as among the defective, delinquent, and pauper classes. This would make a proportion among the adult persons of about one in every seventy-five, and even then would include only the grossest cases. Is not here the largest known field for effort?

Under the second subdivision of the subject, that of education, comes subordinately the hygienic education of children and of adults who are predisposed. We cannot give much of detail. It embraces, indeed, all ways of living. A few leading ideas may be mentioned.

1. Early book-education should not be forced; let the child grow up and absorb its education by contact. It is stability of character and ability to do that the child needs, not the hot-house growth of memorized data.

2. Repress the too often excitable or emotional disposition toward a quiet, steady control of self. Do not encourage any one to be a prodigy. Extreme brightness in some one way may mean an unbalance. It is not the enduring element.

3. A country life and an outdoor life for a child tend usually in the right direction. All seclusion and sedentary habits are to be avoided.

4. Educate the child freely, rationally, and plainly against the evils of dissipation, of alcoholism, and of all excesses. Alcoholism especially has a distinct tendency toward both physical and mental impairment. Of course, the parent is the natural educator of the child, and in proportion as the parent is unbalanced, erratic, unstable, hysterical, alcoholic, or of other mental defect, the tendency will be to perpetuate carelessly the defectiveness. To quote from J. Madison Taylor concerning imbeciles, "In a large proportion of cases the parents are themselves mentally incompetent. They are certainly rarely fit to grasp rightly the spirit of the inquiries." This is only to be met finally by the general culture of an enlightened public opinion, as before outlined.

5. Beside such causes as above considered, causes such as malnutrition, blood-changes, fevers, toxic elements, and ways of living are more vaguely acting causes calling for medical study and an education in physiology or physical life, as well as in the more and mental influences above.

Summarizing, then, we find that to those to whom most peculiarly belongs the name defective we have:

1. A gross form of mental feebleness can be produced by head-injuries or in later life by brain-changes like those of hemorrhage or abscess of the brain, and in senile life atheroma, atrophy, and general senile recession.

2. In very early life such causes as severe typhoid or scarlet fever can in a few cases produce permanent feebleness of mind, however, acting upon a predisposition.

3. Under heredity we may have (a) one or both parents insane, imbecile, epileptic, paralytic, eccentric, hysterical, choreic, or with other nervous or mental defects, or (b) one parent may be syphilitic, consumptive, alcoholic, or Brightic, and the nervous system thus impaired will show an impaired nervous system in the children of varying type, or developing into defects the form of which seems largely a matter of seeming chance.

Under headings one and two our preventive ideas do not very thoroughly apply, but these do not make up a very high per cent. of our total cases. The third class is that to which we may apply our effective study. We advocate, first, legal measures controlling or preventing the marriage of the grossly defective ones; secondly, hygienic and general education which shall hinder the development of the predisposed traits and help people to avoid the

effects; and, thirdly, the education of the popular masses to sustain and support preventive measures as advocated.

In conclusion, concerning legal measures, just a note. It has been said that all men are "free and equal," but the fallacy of this is now quite well known. We are not free to do that which will interfere with other's freedom or well-being, and the marriage of epileptics certainly does just this to the offspring. I feel that by such measures we strike at the root of the evils, while by nursing and liberating the defectives we merely try to bend and direct and make healthy the branches and often perpetuate the defectiveness. I cannot think that by multiplying words or by rhetorical effects I can add to these plain statements, which I hope are honestly, if too bluntly, stated. I therefore leave the subject with you.

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CLINICAL MEMORANDA.

BELLADONNA-POISONING WITHOUT DILATATION OF THE PUPILS, CAUSED BY A BELLADONNA-PLASTER.¹

BY DOUGLASS W. MONTGOMERY, M.D.,
PROFESSOR OF DISEASES OF THE SKIN, MEDICAL DEPARTMENT OF THE
UNIVERSITY OF CALIFORNIA; CONSULTING PHYSICIAN FOR
DISEASES OF THE SKIN AND PATHOLOGY,
GERMAN HOSPITAL.

I ONCE ran across the following case of belladonna-poisoning, which had not the usual prominent symptom of dilatation of the pupils, and this peculiarity, together with some other circumstances of the case, put me so on the ragged edge of doubt for a few hours that the lively impression of the incident will probably never leave me.

On April 2, 1891, about 10 o'clock in the evening, I was called to see a patient who had consulted me several times before on account of rheumatic pains, cramps, and various minor ailments.

He was a large, fleshy man, aged sixty-seven years,

¹ Read before the San Francisco County Medical Society, December 10, 1895.

a good eater and drinker, very well preserved, and had a distinct murmur with the first sound of the heart, heard loudest at the apex. Sometimes he had dizziness while walking on the street, and occasionally pain and numbness in the fourth and little fingers of the left hand, a symptom that is not infrequently associated with valvular disease. In no other respect, however, did he seem to suffer from his cardiac trouble, for the equilibrium of the blood-current seemed always well maintained, and if there was any hypertrophy it must have been trifling.

As I said before, I was called in to see him on this particular evening, and I found him with a flushed face and his tongue so hard and dry that it felt as it sometimes does in extreme cases of diabetes. There were constant attempts to swallow, and he had a quickened and rather stormy pulse and increased respirations. His speech was rather thick on account of the dryness of the tongue and mouth, and he was a little "rattled" in his ideas, but rational enough to give an account of himself. He said he had felt this coming on just before dinner, and he attributed it to some whiskey and quinine which he had taken at a bar during the afternoon. It happened that just at that time this way of taking whiskey was the fashionable "tonic" in the down-town drinking-resorts, and was drunk by a large number of people who wished to be in that particular "swim." I knew of and had seen the erythema sometimes caused by quinine, and also knew that whiskey thickened the tongue and jangled the ideas out of tune, but neither of these drugs nor their combination seemed to fit the symptoms in the present case. Atropine- or belladonna-poisoning ran through my mind, but this idea was dismissed because the pupils were not dilated, and they did not dilate during the entire trouble. Furthermore the whiskey and quinine were taken at a bar, not in a drug-store, so that there was little chance of a mistake in dispensing, and he said he had not taken any other drug during the afternoon, and of this fact he was positive.

Although he had every appearance of having a very high fever, yet his temperature was normal; but then febrile affections do occur without a thermal rise. I went over his chest carefully to exclude pneumonia, nor could I find anything else to account for his condition. All this was not very satisfactory, but the facts as I saw them were: A man puffing away at a fairly high rate, with a stormy, accelerated pulse, a dry, hard, furred tongue, a dry, reddened, but not hot skin, a flushed face, constant efforts to swallow, no rise of temperature, and no dilatation of the pupils.

Having determined to await further developments, I left him, promising to be back early the next day.

I was called again at 2 o'clock in the morning, those who were watching him becoming very much alarmed. He was now frankly delirious, although the delirium was not of a dangerous character. He was very restless, picking at the bed-clothes, constantly attempting to get out of bed, and mumbling incoherently and rapidly about a gold-mine in which he was interested. He had evidently grown a great deal worse during the few hours I had been absent. He was not suffering from diabetes, for there was no sugar in his urine, and there had been none in any of the examinations that had previously been made of it. Nor had I ever found any

albumin. He used to pass only from a quart to forty ounces of urine a day, excluding that passed at stool, but he always perspired very freely, which would account for the somewhat diminished quantity. Bright's disease without albuminuria does occur, and the heart-lesion, the diminished quantity of urine, and the patient's habits made me watchful in this regard. There was no urinous odor on his breath, however, and the general symptoms did not tally with those of a case of uræmic delirium.

While sitting on a chair watching the patient and thinking what in the world could be the matter with him, it suddenly occurred to me that I had told him to put a belladonna-plaster over one of the numerous pains and aches he used to complain of. I almost automatically walked across the room and felt under his shirt, finding an immense belladonna plaster twenty inches long and six inches broad over the left side of the chest. This was quickly pulled off, the skin well washed, and a hypodermic of morphine given.

He soon recovered and was able to go about his ordinary business in a few days.

He gave the following account of how it all happened: He had worn smaller pieces of belladonna-plaster over the left side of the chest for quite a long time, and had frequently suffered from dizziness and a dry, uncomfortable feeling in the throat. The dizziness was supposed to be owing to functional derangement of the liver, and the dryness in the throat to a pharyngitis. The afternoon of the evening on which he was taken ill he went to a drug-store and asked for a good, big piece of plaster. They said they had some in just fresh, and they cut off as large a piece as he wanted. Having secured the plaster he went to the baths and took a piping-hot soak, and applied the plaster to the actively perspiring, freshly washed skin. Before dinner his mouth was already disagreeably dry and his throat constricted, but he did not heed it much. The other symptoms followed as they are related.

Belladonna, or its alkaloid atropia, is used so much in medicine, and the drug acts so energetically on human beings, that cases of poisoning by it cannot be said to be rare. Poisoning by the application of a plaster is, however, undoubtedly not a frequent occurrence, but its possibility ought to be borne in mind.¹ This case was peculiar in that there was no dilatation of the pupils, an event so rare that its absence would justify entirely overlooking the fact that it was a case of

¹ Pye-Smith mentions a case of belladonna-poisoning under the care of Mr. Hilton, "caused by the application of a large belladonna-plaster in a woman, who must, one supposes, have been more than commonly susceptible." (*Diseases of the Skin*, by Pye-Smith, p. 180.)

In one case 100 milligrammes (about 1½ grains) of atropine caused death by being absorbed through a vesicated surface. (*Lehrbuch d. Intoxikationen*, von Dr. Rudolf Kobert, Seite 606.)

Crocker mentions the case of a man who wore a belladonna-plaster for a week and then took two seven-drop doses of the tincture, causing his hands and feet to become swollen, red, and tense. (*Diseases of the Skin*, by H. Radcliffe Crocker, M.D., p. 327.)

Ernest F. Maddox has also reported a case of poisoning by a belladonna-plaster (*Amer. Journ. Med. Sciences*, vol. cvi. p. 572). The pupils were no more dilated than is frequently the case in myopia.

belladonna-poisoning at all.¹ But if the dilatation of the pupils had been present, and the fact of its being belladonna-poisoning forced on one, so to speak, even then one might not think of the possibility of its being caused by a belladonna-plaster.

If I had then known of that very simple way of demonstrating belladonna-poisoning by dropping some of the patient's urine in the eye of the family cat, the patient might have been saved a risk and I a great deal of worry.²

REPORT OF "A CASE OF EPITHELIAL CANCER OF THE NOSE OF THREE YEARS' STANDING;" ITS TREATMENT AND CURE.³

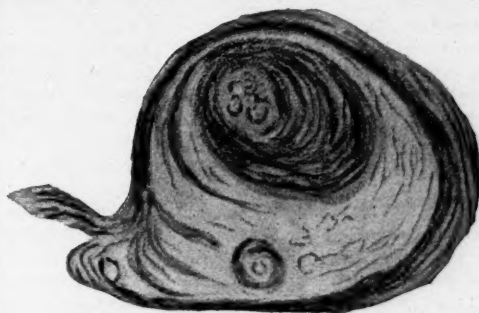
BY CHARLES R. WEED, M.D.,

LARYNGOLOGIST AND RHINOLOGIST TO ST. ELIZABETH'S HOSPITAL, UTICA, N. Y.; MEMBER OF THE ONEIDA COUNTY MEDICAL SOCIETY, ETC.

SEPTEMBER 14, 1894, Mrs. H., seventy-five years of age, was sent by Drs. Quin and Bergess, of this city, as a case of epithelioma, which, on examining carefully, I confirmed. The characteristic "concentric globes or epithelial nests" presenting in microscopic section, I at once proceeded to clean the ulcerated and broken-down surface carefully and thoroughly, and though advising curettage, it was decidedly objected to by the patient. The seat of the disease was on the right nasal ala near the junction of the cartilage with the right bone of the nose, and extending in its course to within one-fourth of an inch of the internal canthus of the right eye. As destructive action had advanced under the scab which covered it I proceeded to use trichloroacetic acid, being particular to cauterize thoroughly every portion of the cancerous mass, first using a 10 per cent. solution of cocaine to relieve the pain. I then gave my patient a solution of zinc chloride, ten grains to the ounce, with directions to keep the surface wet with the same and to see me the following day. The disease was of three years' standing, the woman emaciated, poorly nourished, and full of "Irish obstinacy," so much so that she would not take any internal medicines, and other doctors had prescribed ointments, etc., galore—of course, unavailingly.

This case at the sixth visit began to show slight improvement. The slough from the acid was removed and effort made to induce granulation. For months it was "up and down," and when after healing two-thirds of the sore pearly nodules would appear in the upper portion and have to be destroyed, necessitating more patience and care. I continued my treatment of

the case, varying the dressings but slightly and depending *entirely* upon the zinc-lotion and the acid cauterization. My work has been rewarded with success. There has been perfect healing, and with the exception of a slight depression the skin is unbroken. The original size of the cancer was one inch by three-fourths of an inch, and she had been discouraged by everybody.



As I took the case (a charity one, by the way) for the purpose of experimentation, I feel positive that if this treatment is followed under similar conditions success will be assured. Of course, the administration of arsenic in these cases I should consider beneficial; but, as heretofore stated, "my old woman" would have none of it.

The trichloroacetic acid I consider the best local caustic, and in this case unquestionably was the curative agent.

I present this case for your consideration.

226 GENESSEE ST., UTICA, N. Y.

MEDICAL PROGRESS.

Infection through Books—At a recent meeting of the Société de Biologie, DU CAZAL and CATOIN (*Münchener medicin. Wochenschrift*, 1896, No. 1, p. 22) detailed the results of an investigation to determine whether books were capable of transmitting contagious diseases. The streptococcus, the pneumococcus, the diphtheria-bacilli, the tubercle-bacillus, and the typhoid-bacillus were thus studied. Animals inoculated with cultures prepared from books contaminated with the products of the various conditions in which the organisms named were found developed the given affection. It is thus necessary to practise disinfection of books that have been used or in any way contaminated by persons suffering with infectious diseases.

An Analysis of Eighty Cases of Lithotripsy.—At the recent French Congress of Surgery, ALBARRAN (*Ann. d. Malad. d. Org. Gén. Urin.*, 1895, No. 12, p. 1079) presented a statistical analysis of 80 cases of lithotripsy. Seventy-six were in males, 4 in females (1 in a girl of ten years). Of the calculi, 46 were phosphatic, 29 uric acid, 4 urophosphatic, and 1 oxalic. Of the patients, 20 were older than seventy years, and 7 had reached or passed seventy-eight years. The oldest was eighty-four years, and presented aortic insufficiency; the operation was performed without anæsthesia, and the calculus removed weighed 400 grains. The largest stone crushed measured 2.5 inches in its longest diameter, and weighed 2.5 ounces. In two-thirds of the cases the bladder was

¹ It must not be forgotten that this was a case of chronic poisoning, for the patient had worn belladonna-plasters, although not such large ones, for a very long time, and Sabatini (quoted by Kobert) draws attention to the fact that the drug, after a time, ceases to act on the salivary glands, the heart, the intestine, and last of all on the pupil. (Lehrbuch d. Intoxikationen, von Rudolf Kobert, Seite 610.)

Dr. L. Lewin draws attention to the fact that there can be belladonna-poisoning with only moderately dilated pupils. (Nebenwirkungen d. Arzneimittel, p. 221.)

² Mentioned by Prof. H. C. Wood in his lecture on belladonna. (The Boston Medical and Surgical Journal, July 13, 1893.)

³ Patient presented before Oneida County Medical Society quarterly meeting, July, 1895.

infected, and in many the prostate was enlarged; in several pyonephritis existed. In 8 cases the operation was performed without anaesthesia, sometimes because of facility of performance and small size of the stone, and at other times because of contraindications to anaesthesia. Recovery ensued in all cases but one, in which death resulted from anaemia.

The Renal Changes of Diphtheria.—REICHE (*Centralbl. für innere Medizin*, 1895, No. 50, p. 1209) reports the results of a study of the kidneys in 85 fatal cases of diphtheria observed prior to the antitoxin-period. Thirty-eight of the cases had been in males and 47 in females. Fifty-two were under five years of age, 23 between six and ten years. In 22 death took place between the 2d and 5th days, in 36 between the 6th and 10th days, in 27 between the 11th and 24th days. Tracheotomy had been performed in 58. Forty-seven presented lobular pneumonia of varying extent. In many cases the trachea and bronchi were involved in the diphtheritic process; in 14 the gastric mucous membrane, in 8 portions of the oesophagus, and in 1 a portion of the ileum.

The kidneys presented no constant or characteristic naked-eye appearance. Microscopically, changes in parenchyma, interstitial tissue, and Malpighian bodies were visible. Those in the parenchyma were the most pronounced and assumed two main types. In all there was cloudy swelling of the epithelium and later fatty degeneration. A smaller number of cases presented coagulation-necrosis. In 44 cases inflammatory proliferation of the interstitial connective tissue was found. In all instances the changes were most pronounced in the cortex. The Malpighian bodies constantly presented alterations, though of varying degree. All of these changes are attributed to the action of the toxins generated at the seat of the diphtheritic process, and thence absorbed into the circulation. The liver was affected in a similar way, but in a much smaller number of cases and in slighter degree; the pancreas only exceptionally. No relation, however, could be established between the character and extent of the diphtheritic process and the secondary changes in the abdominal viscera.

Pseudo-bulbar Paralysis in a Child Three Years Old.—At a recent meeting of the Society of Pediatricists of Moscow, KYSELE (*Presse Médicale*, 1896, No. 3) reported the case of a girl apparently normal at birth except for pronounced flexion of the fingers and toes. It was at once observed, however, that the infant suckled with difficulty, and later that it failed to protrude its tongue. At the age of about a year, following an acute illness lasting three months and diagnosed as typhoid fever, the child presented a condition of weakness, with difficulty in deglutition. It had never spoken. On examination, at the age of three years, the child protruded its tongue with difficulty. There was copious salivation and a disagreeable odor exhaled from the mouth. The bony skeleton and the musculature were well enough developed. There was no evidence of rachitis, although the state of the nutrition was below par. The mucous membranes presented a normal tint. The gums were swollen and hyperæmic, and bled readily. No lesion of the viscera could be discovered. The sternum was deeply depressed with each inspiration. Hearing and vision were normal. There existed simple nonatrophic

paralysis of the muscles supplied by the two inferior branches of the facial nerves, involving especially the orbicularis oris; those supplied by the upper branches were normal. The hypoglossus was paretic on both sides. Respiration was free, but phonation was impaired. The extremities were rigid, but the electric reactions were preserved. The cutaneous reflexes were generally increased, and the tendinous reflexes also, especially in the lower extremities. The feet occupied a position of equinovarus. The little one could stand erect if supported, but it was unable to walk. Urine was passed incontinently.

Successful Total Extirpation of a Gravid and Myomatous Uterus.—CAMERON (*British Medical Journal*, No. 1823, p. 1414) has reported the case of a woman, thirty-six years old, in the fifth month of her first pregnancy, whose abdomen was greatly distended. Eight years previously the patient had noticed by accident a swelling in the left iliac region, about the size of a hen's egg, which for a month or two increased in size slightly, then ceased growing and remained stationary till she became pregnant. The legs and thighs were oedematous, and some dyspnoea existed. There was no difficulty in micturition, but the bowels were constipated. Lungs and heart presented no abnormality. Milk could be expressed from the breasts. The abdomen was greatly distended, presenting the appearance of pregnancy at term. It measured thirty-seven inches in circumference at the level of the umbilicus. On palpation, a large, smooth, round, hard swelling was found in the left side of the abdomen, crossing the middle line and being continuous with a swelling on the right side, from which, however, it was separated by a sulcus. The swelling on the right side was elastic in consistence, but two or three hard, rounded nodules could be distinctly made out on its anterior surface. Over it the uterine souffle could be heard, but the foetal heart-sounds could not be recognized. On vaginal examination the whole cavity of the pelvis was found to be filled with a hard mass, impacted in it and continuous with the tumor above. The uterus appeared to be very much drawn up. Coeliotomy was undertaken, and when the abdomen was opened a large, irregular tumor was encountered, the left portion consisting of an interstitial myoma, the right of the distended uterus. In addition, implanted upon the upper and posterior uterine walls, were several subserous myomata, varying in size from a walnut to an orange. Through an incision in the anterior wall of the uterus a five months' foetus was removed, which was perfectly formed and had evidently been dead only a short time. The placenta was well developed and was easily detached. An elastic ligature was passed around the uterus and tumors as close as possible to the cervix and secured. The uterus and tumors were cut away and the uterine and ovarian arteries were ligated. The ovaries and tubes were also removed. The tumor blocking up the pelvis was with some difficulty freed from adhesions, drawn up, and enucleated. The peritoneum was stitched round and round with catgut ligatures to the mucous membrane of the vagina. These ligatures were then drawn down into the vaginal canal and the abdominal wound was closed with silk-worm-gut sutures. The patient made a good recovery, being dismissed perfectly well in the seventh week after the operation.

THE MEDICAL NEWS.

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SATURDAY, JANUARY 25, 1896.

IN THE MATTER OF IDIOTS.

THE State Commission in Lunacy of New York have so construed the amended Constitution that a class of inmates of the State Hospitals for the Insane are liable to be left without proper care and supervision. The Constitution provides that there shall be "a State Commission in Lunacy, which shall visit and inspect all institutions . . . used for the care and treatment of the insane (not including institutions for epileptics or idiots)." The Lunacy Commission construes this exemption of institutions from its visitation and inspection to mean that the idiots at present in the State hospitals must be removed, and accordingly a circular has been issued by the Commission to the superintendents, "In the matter of Idiots," directing them to notify friends and county authorities that they must forthwith remove those idiots for whose care the latter are responsible. The superintendents are now engaged in informing the county officials of the names of idiots in their hospitals who must be removed under this order of the Commissioners. This removal of idiots from the State hospitals means that they are to be returned again to the poor-houses from which they were, for the most part, so recently

transferred under the provisions of the State Care Act.

The result of this action of the Commission has created great excitement in many counties, owing to the disturbances which these so-called "idiots" create in the poor-houses, and the entire want of adequate facilities for their proper care. In Kings County the Charities Commission has flatly refused to receive these "idiots" unless the Superintendent of the State hospital certifies that in each case the person is not insane. The Commissioners have taken that position under the instructions of the State Board of Charities, which has supervision of the poor-houses of the State. Meantime, this most helpless and pitiable class of dependents, for which the vaunted State Care Act was believed to have done so much, by removing them from the poor-houses, have no legal status in the State or county institutions. The insane idiots of New York are like the bat in the fable, which the beasts would not receive because he was a bird, and the birds because he was a beast.

The position taken by the Lunacy Commission seems hardly tenable in view of all the facts. The new Constitution simply prohibits that body from visiting and inspecting institutions for idiots. It in nowise forbids the reception and retention of persons duly adjudged insane in the State hospitals, though they may be otherwise classed as idiots. On the contrary, the law prohibits all other institutions from receiving and retaining them in custody except the State hospitals and institutions licensed by the Lunacy Commission for the care and treatment of the insane.

A fair construction of the Constitution and the lunacy laws would seem to lead to two conclusions: (1) that the Commission cannot officially visit and inspect institutions for idiots, and (2) that the State hospitals must receive for care and treatment all persons taken to them with duly prepared papers adjudging them insane. Nor are these two legal requirements incompatible, for while the Lunacy Commission is prohibited from visiting and inspecting poor-houses, the insane of the poor-houses must be removed to the State hospitals. So it has followed, under the operations of the State Care Act, that among the insane persons found in the poor-houses were some who are now called "idiots." They were transferred to the State hospitals as insane, and were by them duly received, registered, and held in custody. The fact that subsequently

the Constitution limited the visitations and inspections of the Lunacy Commission would not seem to change the position of a certain class of insane in the State hospitals. It would be quite as consistent for the Commission to order the removal of all insane blind or deaf from these hospitals, because that body is not allowed to visit and inspect the institutions for the blind and deaf.

THE ECONOMIC ASPECT OF CERTAIN MUTILATING OPERATIONS UPON MEN AND WOMEN.

ALLUSION is made to those operations by which not only are important organs removed from the body, but by which the body is also forever rendered incapable of fulfilling one of the most important functions of life—that which pertains to reproduction. These organs, the ovaries in women, the testicles in men, are essential to the propagation of species; without them there can be no reproduction.

There is no occasion for argument in all those cases in men and women in which these organs are hopelessly—so far as human knowledge and judgment can determine—diseased. For such individuals, reproduction being out of the question, and the diseased organs a menace to comfort if not to life itself, there is no more impropriety in their removal than there is in the removal of any other structure or tissue which is injurious to the body at large. There are other cases in which the removal of the organs is more or less debatable, as in cases in which one ovary is hopelessly diseased and the other only slightly so; also many of the cases in which removal of the testicles is advocated for the relief of enlargement of the prostate gland. One may err in such cases by either radical or conservative treatment. Still further, there are cases in women in which the ovaries are sound or sufficiently so to enable menstruation and ovulation to continue, and in which the ovaries are removed because of some serious difficulty in structure or function in some other part of the body. Such conditions as fibroid tumor of the uterus, obstinate and intolerable dysmenorrhœa, the severer degrees of chronic endometritis, etc., are examples of disease in which the mutilating operation referred to has often been followed by the most satisfactory results. It must not be forgotten that in the great majority of the cases which have been considered the individuals are incapable of reproduction,

whether the diseased organs are removed or not. Removing the organs does not change the sterile condition, but it frequently does so improve the patients' condition in other respects that they are no longer a burden to society, but become able to take care of themselves or even to assist others. For all such cases the operation represents a decided economic gain. As to the others in this group in which organs only partly diseased are sacrificed, or those which are not at all diseased are sacrificed for the advantage of the body at large, no doubt mistakes are sometimes made. In the anxiety which some men seem to have to roll up large series of cases we believe they often operate prematurely, not to say without just cause. This barbarous *furor secundi* which consumes some operators is like the savage's desire for scalps, and does not always represent such work as would bear close scrutiny in all its details. Nowadays, when the world is so full of men who are removing ovaries by hundreds and uteri by scores, it is well to make some inquiry as to the antecedents of both the operators and their patients should our opinion be asked as to the justifiability of this unsexing by wholesale.

It is unbecoming to judge of any man's work without knowing the details, but we cannot help the belief that among the thousands and tens of thousands of women who have been unsexed in the last twenty years the unnecessary operations have formed no inconsiderable percentage, and thus has occurred a great economic loss, not only in the number of fatal cases, chiefly unreported, of those who were more or less valuable elements of society, but in the check to population by the sterilization of the many who were capable of bearing healthy children and properly rearing them.

We are not of the number of those who believe that the chief object of a woman in life is to bear children. Ability to do so is, however, of great importance, and there are probably few physicians or surgeons who would care to marry one whom they knew to be without this ability.

For obvious reasons, it need not be feared that the operation which has proved so effective for the relief of enlarged prostate will ever become as popular as ovariectomy, common though enlarged prostates are.

There is another side of this question relating to the cases of severe disease in men and women, which require removal of the essential generative organs, in which the general practitioner in charge

is at fault, because he fails to appreciate the gravity of the situation, temporizes and palliates until an abscess ruptures internally or general septicæmia occurs, or a crisis of some other character arrives, the result of which is that the slenderest possible chances of relief by surgical measures remain, and the patients either die without an attempt being made to help them, or in consequence of an operation, in which case the last man to see the patient usually gets the blame. Such procrastination in these times is seldom justifiable. There are too many available men in most communities who are skilful in handling such cases if given reasonable conditions for success, to warrant the general practitioner in conducting them unaided until the time for interference has gone by. This also represents economic loss from another point of view.

We now come to an aspect of the subject which will doubtless excite opposition, and may seem inconsistent with the spirit of the remarks which precede. It is not the first time that it has been broached by us or by others. It is a subject which must come up for agitation, as a matter of scientific and economic importance, and will be settled *pro* or *con*, we believe, in the near future.

It concerns the sterilization of the irreclaimably bad in the community, both males and females, for the protection of the community, by removing at least one potent source of supply. It is idle for anyone to claim, in these times, that heredity does not exert a most powerful influence upon the physical, moral, and intellectual development. Men or women with bad characteristics will breed their like. Thieves, harlots, and drunkards consort together, for they have similar tastes. Add to heredity the vicious environment to which the children of such parentage are subjected, and we can hardly fail to have criminal traits and tendencies continued and intensified. The well-known statistics which were compiled a few years ago, and which traced the history of a woman of vicious propensities, who finally brought up in an almshouse, showed in the children and grandchildren, many in number and invariably (we believe) criminal in tendency, what an enormous load society takes upon itself in allowing such depraved beings to reproduce their kind indefinitely. Communities offer bounties for the destruction of noxious beasts and vermin, and yet offer no resistance to the reproduction of elements far more dangerous than these. From the humanitarian standpoint such sterilization is robbed

of objections which a few years ago could have been urged against it, for it can be done painlessly and with almost no danger to life.

Naturally it would have greater terrors to men than to women, especially to young men, by whom the greater number of crimes are committed. It should be applicable only to incorrigible offenders; that is, to those who have been sentenced to prison two or three times for serious crime, or to those who are guilty of crimes which are particularly revolting and shameful. It would probably act as a deterrent to the commission of many crimes, not alone from the sense of personal loss and defect involved, but from the disgrace which would attach to it and the exposure to ridicule.

It would certainly be offered as a substitute for lynching in those parts of the country where rape and similar deeds of violence are said to abound, and might tend not only to diminish the number of such lawless procedures, but also tend to diminish the crimes which evoke lynching, the latter being manifestly a failure in that respect.

Of course, the scope of this article would prevent us from going into the details appertaining to the suggestions which have been made.

The matter must be treated as any other pathological-sociological subject would be treated, and discussed from its scientific as well as from its sentimental bearings.

BACTERIOLOGY.

UNDER THE SUPERVISION
OF
WILLIAM H. PARK, M.D.

THE PRESENT STATUS OF THE USE OF BACTERIAL CULTURES FOR THE DIAGNOSIS OF SUSPECTED DIPHTHERIA.

THE making of a true diagnosis in every case of suspected diphtheria is at the present time not only of importance for the public health and for prognosis, but also as a guide to the use of the antitoxin in treatment. That we may judge fairly the exact value and meaning of a bacterial examination let us consider carefully the nature of the information which we derive from the examination of the bacteria on the coagulated blood-serum after a stay of twelve to fourteen hours in the incubator after its inoculation with the throat-secretion or exudate from a suspected case of diphtheria.

The facts upon which the use of cultures for diagnostic purposes is urged are as follows:

1. That in all cases of diphtheria the diphtheria-bacilli are present.
2. That those cases in which the diphtheria-bacilli are absent, not only do not themselves develop the characteristic lesions of diphtheria, but never communicate true diphtheria to others.
3. That many of the less characteristic cases of diphtheria and pseudo-diphtheria are so similar in appearance, symptoms, and duration that it is impossible to separate them by any other means than through cultures.
4. That the throats of many healthy persons who have been in contact with diphtheria or with articles infected with the bacilli become infected, and that although they may never develop diphtheria, yet their throat-secretions are equally as dangerous as those of convalescent cases in whose throats the bacilli persist.
5. That the examination of cultures made upon solidified blood-serum under the proper conditions forms, with few exceptions, a reliable method of determining whether the diphtheria-bacilli are present or absent in the suspected throat.

The very nature of the bacterial examination of the growth on the coagulated blood-serum suggests that it must to a certain extent be incomplete.

To be of practical value to the physician the report must be received within twenty-four hours of the time of the making of the culture. This necessitates that the diphtheria-bacilli be differentiated from all other bacteria simply upon the examination of the stained cover-glass preparation from the original serum-tube. Anyone who is familiar with bacteriology knows that this is impossible. Very fortunately, however, there are very rarely any other bacilli in the throat which both grow upon blood-serum and have the same staining and morphological characteristics as the diphtheria-bacilli.

This practically excludes the error of confusing the virulent diphtheria-bacilli with any other bacteria except two forms—the so-called pseudo-diphtheria-bacilli and the non-virulent bacilli.

The pseudo-diphtheria-bacilli present sufficient peculiarities to be separated from all but a few of the forms of the less characteristic diphtheria-bacilli. The virulent and non-virulent diphtheria-bacilli present, however, identical appearances and cultural peculiarities and can only be separated by animal inoculation.

These non-virulent bacilli are most abundant in those places where diphtheria has long been prevalent, and are, in fact, virulent bacilli which have lost their virulence.

These bacilli, like the pseudo-diphtheria-bacilli, are, so far as we know, incapable of causing disease. They exist in about one per cent. of the throats of persons living in great cities.

The practical difficulty which the non-virulent bacilli cause in the use of cultures for diagnostic purposes is apparent. If a culture from a suspected throat which presents no characteristic lesions contains bacilli looking like diphtheria-bacilli, we cannot positively state whether they are virulent or not. The amount of probability in any case would depend upon the prevalence of the non-virulent forms in that city or neighborhood. Thus, to give an example:

If there develops in a throat in which non-virulent diphtheria-bacilli exist a simple follicular tonsillitis, cultures would contain bacilli identical in growth with the virulent germs, and the report of such an examination would indicate that the case was one of mild diphtheria. The bacilli in this case, however, would still be non-virulent, and have no connection with the tonsillitis. Another limitation in the value of cultures is that they show only in the roughest kind of a way how many bacilli are in the secretion of a suspected throat; and, on the other hand, they do not absolutely prove that the bacilli are entirely absent from the upper air-passages because they were absent upon the limited portion of mucous membrane touched by the swab.

This is really of great importance in laryngeal diphtheria, for it has been frequently found that the bacilli were at times scant or absent in the pharynx while abundantly present in the larynx and trachea.

To sum up, therefore, we may say that if a culture made under proper conditions contains no bacilli similar to those of diphtheria, it may be concluded that the throat from which it was made contained no diphtheria-bacilli, and that the disease was not diphtheria. If, however, the culture contains bacilli having the characteristics of the diphtheria-bacilli, we can only conclude, unless we wait for animal inoculation, that the bacilli are in all probability virulent. The degree of this probability in any given case will depend greatly on the history of exposure and the lesions present.

In view of this doubt, wherever possible the virulence of the bacilli in the mildest cases should be tested, and where this is impossible health-departments may find it wise to arrange it so as to allow the physicians themselves to exercise a certain amount of responsibility in determining whether cases which have no characteristic symptoms, and yet show bacilli in their cultures, should be treated as diphtheria or not. Undoubtedly, if this were done, a certain number of mild cases of diphtheria would be freed from strict isolation and some harm result; but, on the other hand, physicians would more freely seek the aid of cultures in these light cases, and also co-operate more heartily with the health-authorities. Thus in the end many more of the lighter cases of diphtheria would be partially isolated and receive, when necessary, injections of antitoxin for treatment or immunization.

THE POSSIBILITY OF THE MAINTENANCE OF ANIMAL LIFE WITHOUT BACTERIA IN THE ALIMENTARY CANAL.

SOME ten years ago Pasteur appended to a publication by Duclaux a note in which he expressed his deep interest in the question of a possible relation between bacterial life and animal nutrition. He had often, he said, in his talks with young scientists, spoken of the interest which would attach to attempts made to nourish a young animal (rabbit, guinea-pig, dog, or chick) with food completely deprived of bacteria. He was inclined to believe that life might be found impossible under these circumstances, and suggested that if this point were once proved, further experiments might be undertaken in order to determine the organism, or group of organisms, best suited for aiding in the normal processes of digestion. These suggestions of Pasteur attracted considerable attention, but, as is too often the case, a number of individuals, failing to distinguish between a mere statement of opinion and a proved fact, took it for granted that the presence of bacteria in the alimentary canal was absolutely essential for the maintenance of animal existence.

Nencki showed that the digestive ferments by themselves, in the absence of bacteria, are able outside the body quickly and easily to transform food-stuffs into substances ready for absorption, and the alterations which certain substances, the albuminous, for example, undergo through bacterial action, are

at first similar to those which result from the action of the digestive ferments. But here the similarity stops, for the end-products of bacterial decomposition are quite different, food-stuffs under their action being split up finally into aromatic acids, volatile fatty acids, phenol, kresol, indol, skatol, carbon dioxide, hydrogen, methane, and hydrogen sulphide; *i. e.*, into substances which no longer possess any value as foods, and may even, under certain circumstances, prove injurious to the individual in whose alimentary tract they are manufactured. The only possible way of settling the question, however, once it had arisen, was to submit it to actual experiment, and this has recently been done by Nuttall and Thierfelder, in the Hygienic Institute of the University of Berlin.

The employment of the chick, as suggested by Pasteur, was found to be inexpedient, since a certain number of hen's eggs are always infected. The animal found by the experimenters to be most suitable was the guinea-pig obtained by Cæsarean section. This animal was chosen on account of the ease with which it can be reared on undiluted cow's milk, and also on account of the independence which young guinea-pigs manifest from the moment of birth.

The apparatus devised for the reception of the young guinea-pig, after removal from the body of its mother, though somewhat complicated, is relatively simple when one considers the many difficulties which had to be met. A full description of it would be out of place here, but it is of interest in reading the original article¹ to find how each detail was gradually worked out. Suffice it to say that the handling and feeding of the animal, the method of supplying it with air, the removal of excreta, etc., were all finally arranged, so that all danger of bacterial contamination was obviated. It is worth noting that the main difficulty encountered was not in the bacteriological technique itself, but in the disposal of excreta, so that the moisture of the latter should not condense upon the bell-jar or upon the animal under experiment; this drawback was finally overcome by allowing the excreta to fall into water covered by a layer of oil.

The Cæsarean section on the mother guinea-pig had to be done, of course, under strictly aseptic precautions, and it was found that failure of the experiment through bacterial contamination was most

¹ Ztschr. f. Physiol. Chemie, Bd. xxi, Heft 2 u. 3, Nov. 1895.

likely to occur between the time the abdomen was opened and the moment in which the animal was safely enclosed within the apparatus in which it was to be kept.

At the end of twelve hours the animal was fed with sterilized milk, which was given afterward every hour, night and day. By the eighth day after birth the guinea-pig had taken 330 cm. of milk, and appeared normal, looking as healthy and active as the control guinea-pigs removed from the uterus of the same mother and reared in the ordinary way. At the end of this time the animal was killed, and the body opened aseptically. Neither in cover-slips nor in cultures, aerobic nor anaerobic, from both the small and large intestines, could a single bacterium be demonstrated. The experiment proves, therefore, that a guinea-pig can live at least for eight days on sterile milk without the presence of any bacteria in its alimentary canal. Whether or not an animal can live on a vegetable or a mixed diet under similar conditions has been left for further experiment to decide.

The demonstration of the possibility of growing sterile animals opens up another fertile field for research, namely, the differentiation of the products of bacterial action in the body from those of tissue-metabolism. Investigators have already attempted work in this direction. Thus it may be remembered that Baumann tried to eliminate bacteria and their products from the alimentary tract, by administering calomel to fasting dogs. On the days following the dosage he could find no trace of paired sulphuric acids or of hippuric acids in the urine; the so-called oxy-acids (hydroparacumaric acid, paroxyphenyl-acetic acid), however, were present, although in much diminished amounts. Baumann thought, therefore, that the paired sulphuric acids and hippuric acid occurring in the urine of carnivora could be traced directly back to decomposition within the intestine, while the oxy-acids, at least in part, owed their appearance to the metabolic activities of the tissues of the animal itself. As Nuttall and Thierfelder point out, however, there is no good evidence, or even a likelihood, that in Baumann's experiments the intestine was entirely free from living bacteria, notwithstanding the antiseptic action of the calomel, and it is, therefore, quite possible that the small amounts of oxy-acids present in the urine could have had their origin in bacterial decomposition. So far, Nuttall and Thierfelder have been unable to collect from a sterile animal enough urine to permit

of such tests, but we are assured that their experiments are by no means as yet completed.

A whole host of allied problems immediately suggest themselves, and it is not improbable that the results of the investigation here reported will mark a new era in the study of the processes of digestion and metabolism. L. F. B.

ECHOES AND NEWS.

ERRATUM. The article on "The Diagnosis and Treatment of Gout," page 64 of THE MEDICAL NEWS, January 18th, should have been credited to Dr. Louis F. Bishop, of New York.

TERRILLON, a distinguished French surgeon, died recently in Paris.

A GRANT of 80,000 francs has been made to the Imperial Institute of Experimental Medicine at St. Petersburg for the purposes of preparing the antitoxin of diphtheria.

DR. E. L. B. GODFREY, of Camden, has been elected Secretary of the State Board of Medical Examiners of New Jersey, in place of Dr. Wm. Perry Newton, who resigned.

NEW ROCHELLE, N. Y., has closed her schools because of the prevalence of diphtheria. The epidemic is reported as quite mild, however, and as nearly as can be ascertained only six deaths from this disease have occurred there within three months.

DR. ABRAHAM WITTON LOZIER died suddenly of heart-disease on the 14th instant. Dr. Lozier had been prominently connected with many educational and charitable institutions during his long and active career in New York City.

AT Montreuil, near Paris, the doctors have refused to give their services to the municipal dispensary, because a woman has been appointed to serve one day in the week. It appears, however, that she is to receive remuneration, while they do not.

THE question of prohibiting the use of matting and other textile fabrics upon the floors of public conveyances, lest they spread disease by collection in them of dried sputum and other morbid material, is now under consideration by the New York Board of Health.

THE Maryland Lunacy Commission in a recent report strongly set forth the baleful influences of hypnotism, especially when practised upon hysterical or nervous individuals, and recommended that public exhibitions of it be suppressed by law.

It is reported that Emperor William had Prof. Roentgen rush from Wurzburg to Potsdam to give an illustrated lecture to the royal family on his alleged discovery of how to photograph the invisible, and bestowed on him the Order of the Crown, the same second-class decoration that Koch got.

In the action for \$10,000 damages against Dr. Boyden, of Brooklyn, brought by Peter Burggroff for the death of his daughter, which occurred from lockjaw, the alleged result of vaccination, no verdict was reached. The

jury failed to agree, standing 10 to 2 in favor of the defendant.

VIVISECTION IN SWITZERLAND. The inhabitants of Zurich recently rejected, by a vote of 39,476 against 17,297, a proposal for the absolute prohibition of vivisection. On the other hand, a proposal in favor of the protection of animals, with due consideration for the demands of science, was adopted by a vote of 35,191 against 19,551.

At a meeting of the Medical Faculty of Harvard University on January 4, 1896, a rule was adopted requiring all candidates for admission to this department subsequent to June, 1901, to bring a degree in arts, literature, philosophy, science, or medicine from a recognized college or scientific school. However, the faculty will make exceptions to this rule when individual cases appear to merit such consideration.

NEW YORK CITY at present contains 145 cases of scarlet fever, but the Bureau of Contagious Diseases persists in denying that there is an epidemic. For the past four to six months the public hospitals have found great difficulty in excluding patients with this disease from their wards, where its frequent development is a menace to their usefulness, to say nothing of the aggravating trouble and expense necessary to prevent its spread.

ACTIVE and, it is to be hoped, effective steps are being taken to increase the endowment fund of the Library of the New York Academy of Medicine to \$100,000. At the last meeting of the Academy a committee of twenty-five eminent physicians was appointed, who in conjunction with a committee of prominent laymen are to solicit subscriptions. The laymen appointed are Secretary-of-War Lamont, Ex-Governor Flower, Abram S. Hewitt, General E. A. McAlpin, and D. Willis James.

DR. HORATIO C. WOOD was quite seriously injured in Philadelphia on Thursday afternoon (January 16th) in a bicycling accident, and it was only through good fortune that the results of the mishap were not fatal. In attempting to extricate himself from a very uncomfortable position in a crowded thoroughfare, his front wheel caught in the car track and he was thrown over the handle-bar, causing a slight concussion of the brain and two severe scalp-wounds. He was carried to a hospital, but recovered sufficiently in an hour to be taken to his home.

DR. F. W. SHAIN, a prominent physician of Jersey City, fell from his carriage and was picked up dead with a fractured skull on Thursday of last week. While he was driving, Dr. Shain was seen to lean forward as though asleep, and the reins dropped from his hands. The horse walked on, but a moment later the rattle of a Pennsylvania train caused it to shy, and a wheel of the buggy struck one of the pillars of the trestle and Dr. Shain was thrown out. His head struck against the foundation-stone of another pillar and he lay motionless. Dr. Shain had suffered from heart-disease for many years.

From Vienna comes the report of some recent scientific advances in photography. It is announced that Prof. Roentgen, of the Wurzburg University, has dis-

covered an electric light which, for purposes of photography, will penetrate wood, flesh, and most other organic substances. Successful impressions were made of the deeper structures of the human body showing the bones and pathological processes, the flesh being invisible. Many other experiments were made, showing that this new light finds in most organic matter no greater obstruction to its passage than glass furnishes to the rays of ordinary light.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

THE Ninetieth Annual Meeting will be held January 28th, 29th, and 30th, in Jermain Hall at Albany, commencing at 9.15 A.M. on the 28th, and ending at 1 P.M. on the 30th. Roswell Park, M.D., President.

FINAL CORRECTED PROGRAMME. Tuesday, January 28, 1896. Morning session. Call to order at 9.15 o'clock. President's Inaugural Address. Appointment of committees. Reports of standing committees and of special committees appointed at last meeting. Annual report of the State Board of Medical Examiners, representing the Medical Society of the State of New York. Executive business.

PAPERS. On Serum-therapy: Dr. E. H. Wilson, Hoagland Laboratory, Brooklyn. Water and its Relations to Disease: Dr. W. P. Mason, Troy (late of the Pasteur Institute, Paris). On Sepsis of the Newborn: Dr. M. A. Crockett, Buffalo. Discussion opened by Drs. Jacobi, of New York, and Jewett, of Brooklyn. The Question of Puerperal Self-infection: Dr. Charles Jewett, Brooklyn. A Medico-legal Note: Dr. A. Walter Suiter, Herkimer. Shall the State Attempt to Control Spread of Tubercular Disease? Dr. J. L. Heffron, Syracuse. Discussion opened by Drs. Jacobi, of New York, and Z. T. Emery, of Brooklyn.

Tuesday Afternoon Session. Call to order at 2.15 P.M. Discussion: On Early and Latent Syphilis in Infants and Young Children; opened by: 1. Dr. George T. Elliott, New York, Diagnosis and Treatment. 2. Dr. Ernest Wende, Buffalo, Pathology. 3. Dr. B. Sachs, New York, Nervous Manifestations. General discussion opened by Dr. L. D. Bulkley, New York. Discussion: Diseases of Intrauterine Life: (a) On the Part of the Mother: Dr. E. H. Grandin, New York. (b) On the Part of the Child: Dr. P. W. Van Peyma, Buffalo. General discussion opened by Dr. Polk, New York. Address: Medical Education of the Future: Dr. Charles W. Eliot, President of Harvard University. On Sloughing Fibroids Complicating Pregnancy: Dr. M. D. Mann, Buffalo. Discussion opened by Dr. Mundé, New York. The Equilibrium-function of the Ear: Dr. Gaylor P. Clark, Syracuse.

Tuesday Evening Session. Call to order at 7.30 P.M. Scorbutus in Infants: Dr. H. C. MacLean, Brooklyn. Treatment of Malignant Disease in So-called Cancer-institutions: Dr. Nathan Jacobson, Syracuse. Alcoholism and Public Health: Dr. H. R. Hopkins, Buffalo. On the Evolution of Pathology. Illustrated by Lantern-photographs of those who have developed the science,

with illustrations from their works: Dr. J. H. Hunt, Brooklyn.

Wednesday, January 29, 1896. Morning Session at 9 A.M. Abdominal or Vaginal Coeliotomy—Which? Dr. J. W. Whitbeck, Rochester. Vaginal Hysterectomy without Ligations: Dr. W. E. Ford, Utica. Complications in Abdominal Surgery Requiring Intestinal Anastomosis: Dr. Vander Veer, Albany. Some Rare Complications of Appendicitis: Dr. Herman Mynter, Buffalo. The Improved Cesarean Section: Dr. J. Garrigues, New York. General discussion of above papers by Drs. Etheridge, of Chicago; Mann, of Buffalo; Wylie, Mundé, Boldt, Krug, of New York; and McNaughton of Brooklyn. Treatment of Fractures of the Patella by Continuous Extension, without Confinement in Bed: Dr. J. D. Bryant, New York. Early Diagnosis of Tubercular Kidney: Dr. Willy Meyer, New York. The Symptoms and Diagnosis in the Indigestion of Starches: Dr. Reynold W. Wilcox, New York.

Wednesday Afternoon Session. Call to order at 2.15 P.M. Congenital Dislocation of the Hip, with exhibition of case successfully operated: Dr. T. Halsted Myers, New York. Heteroplasty with Celluloid to Cover Defects in the Skull: Dr. Willy Meyer, New York. Discussion: On the Present Status of the Surgery of the Brain; opened by Dr. E. D. Fisher, New York; Dr. M. A. Starr, New York; Dr. Seneca D. Powell, New York. Surgery of the Skull, Dr. B. Sachs, New York. Surgical Treatment of Epilepsy, Dr. Chas. L. Dana, New York. Craniotomy for Imbecility and Epilepsy, Dr. James W. Putnam, Buffalo; Dr. W. C. Krauss, Buffalo; Dr. George Woolsey, New York. Address: Irritation and Counter-irritation, Prof. Wm. Pepper, Philadelphia. Address: Deficient Excretion from Kidneys not Organically Diseased, in Some of the Disorders Peculiar to Women, Prof. James H. Etheridge, Chicago.

Wednesday Evening Session. In the Senate Chamber, 7.45 P.M. Anniversary Address by the President: On the Study of Pathology by Comparative Methods. To be followed by an informal reception in the State Library and inspection of the new Medical Department of the Library. Annual Dinner at the Kenmore Hotel at 9.30 P.M.

Thursday, January 30, 1896. Morning Session at 9.30 A.M. Reorganization of the Coroner System: Dr. W. G. Macdonald, Albany. Distinctive Fractures of Railroad-surgery: Dr. R. S. Harnden, Waverly. Discussion opened by Dr. C. S. Parkhill, Hornellsville. Diabetes and Acetonuria in Children: Dr. W. S. Cheesman, Auburn. Development of Muscular Atrophy on a Basis of Old Infantile Spinal Paralysis, a Favorable Type: Dr. W. Browning, Brooklyn. To be discussed by Drs. C. F. Barber, Brooklyn, and J. W. Putnam, Buffalo. Value of Animal-extracts in the Treatment of Nervous and Mental Disease: Dr. Floyd S. Crego, Buffalo. On the Surgical Treatment of Retroversions and Retroflexions, with Special Reference to Vaginal Fixation: Dr. H. N. Vineberg, New York. Neuritis Complicating Dislocation of the Shoulder and Elbow: Dr. M. A. Veeder, Lyons. Treatment of Aspiration-pneumonia by Drainage by Inversion: Dr. W. W. Seymour, Troy. Difficult Perineal and Suprapubic Lithotomy: Dr. W. Hailes, Albany. Abscess of the Frontal Sinus: Dr. J. P. Crevering, Auburn. Discus-

sion opened by Dr. T. H. Halsted, Syracuse. Some Notes on Trachoma: Dr. M. L. Foster, New York. Tetanoid Hysteria: Dr. Grace Peckham-Murray, New York. Treatment of Edema of the Lungs: Dr. Louis Faugères Bishop, New York. Treatment of Sciatica with Nitroglycerin: Dr. W. C. Krauss, Buffalo. Trephining for Injuries and Diseases of the Cranium: Dr. W. W. Seymour, Troy. Second Report on a Case of Functional Albuminuria: Dr. Eli H. Long, Buffalo.

OFFICERS AND COMMITTEES.

President, Roswell Park, Buffalo. Vice President, William Maddren, Brooklyn. Secretary, Frederick C. Curtis, Albany. Treasurer, Charles H. Porter, Albany.

Committee of Arrangements: William J. Nellis, Albany; William Hailes, Albany; William J. Morton, New York.

Committee on By-Laws: H. D. Wey, Elmira; A. R. Simmons, Utica; F. C. Curtis, Albany.

Committee on Hygiene: Lewis Balch, Albany; Lewis S. Pilcher, Brooklyn; D. S. Burr, Binghamton; Z. T. Emery, Brooklyn; E. V. Stoddard, Rochester; O. W. Peck, Oneonta; Lucien Howe, Buffalo.

Committee on Legislation: Seneca D. Powell, New York; Maurice J. Lewi, New York; A. Walter Suiter, Herkimer.

Committee on Medical Ethics: John S. Warren, New York; Charles Jewett, Brooklyn; Eugene Beach, Gloversville.

Committee on Prize Essays: A. Jacobi, New York; Henry Hun, Albany; W. S. Cheesman, Auburn.

Committee on Publication: F. C. Curtis, Albany; William Warren Potter, Buffalo; F. D. Bailey, Brooklyn; C. H. Porter, Albany.

Committee on Credentials: D. S. Burr, Binghamton; T. F. C. Van Allen, Albany; M. L. Bates, Canaan.

OFFICIAL LIST OF THE CHANGES OF THE STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE FOR THE 16 DAYS ENDED DECEMBER 31, 1895.

CARTER, H. R., Surgeon. Granted leave of absence for 12 days, December 17, 1895.

WILLIAMS, L. L., Passed Assistant Surgeon. Granted leave of absence for 15 days, December 30, 1895.

MCINTOSH, W. P., Passed Assistant Surgeon. To proceed from Boston, Mass., to Louisville, Ky., and assume command of service, December 28, 1895.

BROWN, B. W., Passed Assistant Surgeon. Granted leave of absence for 9 days, December 17, 1895.

PROCHOZKI, EMIL, Assistant Surgeon. To proceed from Buffalo, N. Y., to Detroit, Mich., for duty, December 28, 1895.

THOMAS, A. R., Assistant Surgeon. To proceed from St. Louis, Mo., to Boston, Mass., for duty, December 28, 1895.

CUMMING, H. S., Assistant Surgeon. Granted leave of absence for 16 days, December 16, 1895. Leave of absence extended 4 days, December 26, 1895.

BOARDS CONVENED.

Board to revise regulations regarding uniforms, Surgeon Fairfax Irwin (Chairman), Passed Assistant Surgeon C. E. Banks, and Passed Assistant Surgeon B. W. Brown (Recorder), December 17, 1895.

Board for the examination of officers for promotion and candidates for admission to the service, to meet in Washington, D. C., February 10, 1896. Surgeon George Purviance (Chairman), Surgeon H. W. Austin, and Surgeon H. R. Carter (Recorder), December 30, 1895.